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Tryptophan and Niacin Relations and Their Implications to Human Nutrition[1]

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ALTHOUGH many of the nutrients essential for optimum nutrition are now well established, certain interrelationships occur between different nutrients which still require some attention. One of these relationships which has attracted attention during the past few years is that of niacin and tryptophan. The mechanism of the interaction between these two nutrients is still not completely understood, but the facts so far established have definite value in practical nutrition, and further study will undoubtedly lead to a better understanding of total nutrition. Let us look at a few of these facts in some detail.

The amino acid, tryptophan, was discovered by Hopkins and Cole in 1901. Its importance in nutrition was recognized through the use of certain plant proteins, especially zein. In 1906 Willcock and Hopkins found that the survival of mice was greatly increased when tryptophan was added to a diet high in zein. Osborne and Mendel showed that growth was not obtained until both lysine and tryptophan were added to this protein. Abderhalden observed that dogs fed a casein hydroysate which was free of tryptophan remained in negative nitrogen balance until tryptophan was added. In spite of the fact that this amino acid has been known for over forty years, its distribution in most foods has not been determined with great accuracy. Even today with the availability of microbiological methods of assay, it is more difficult to estimate this amino acid than most of the others because it is destroyed during acid hydrolysis. Other amino acids may be liberated from protein upon acid hydrolysis, but if tryptophan is to be measured, the hydrolysis must be carried out either with alkali or enzymes.

Niacin has been known as the anti-pellagra factor for a little over ten years. In that short time, simplified methods for its estimation have been established, and accurate values for most foods are available. Results for a number of foods obtained by microbiological assay and by animal assay have been compared, and the results have been very similar. Assays on most foods have given us values approximating those one would expect.

Corn, the consumption of which has always been associated with pellagra, contains 1 to 2 mg. of niacin per 100 gm. Patent flour contains 1 mg., although the whole wheat carries 5 to 6 mg. During the milling of wheat, 80 to 90 per cent of the niacin is lost, with 80 per cent of it appearing in the bran, 10 per cent in the wheat germ, and 10 per cent remaining in the patent flour. In fact, all values for niacin appeared logical except those for milk and eggs. Milk contains 0.1 mg. per 100 gm. or 1 mg. per liter. If we accept 10 mg. as the daily human requirement, one would need to consume almost 10 liters of milk to satisfy the need. Eggs also contain only 0.1 mg. per 100 mg. These values were naturally disturbing, since Goldberger had reported that milk and eggs were valuable foods for the prevention of pellagra.

Aykroyd and Swaminathan (1) in 1940 compared the niacin content of a poor maize diet associated with pellagra and a poor rice diet, and the latter was found to contain less niacin than the former. Thus it was impossible to explain why one diet was pellagra-producing and the other not. The question also arose regarding the adequacy of the niacin intake for young children subsisting on diets made up largely of milk.

In order to study these questions further, the National Dairy Council made a grant to the University of Wisconsin to extend studies on this problem. We had hoped to carry out these studies with children, but during the war period it was impossible to set up this program. We, therefore, turned again to the rat hoping that, in light of more recent information, a disturbance in niacin metabolism might be obtained if we used typical pellagra-producing diets. The reader will recall that it had been clearly demon-

[1] Presented at the Dietetic Section of the meeting of the American Association for the Advancement of Science in Chicago, on December 29, 1947.

TABLE 1

Niacin-low purified ration

INGREDIENTS	AMOUNT
Sucrose	77.8 gm.
Casein	15 gm.
Corn oil	3 gm.
Salt IV	4 gm.
L-cystine	0.2 gm.
Halibut liver oil + vitamins E and K	1 drop/rat/week
Thiamine	0.2 mg.
Riboflavin	0.3 mg.
Pyridoxine	0.25 mg.
Calcium pantothenate	2.0 mg.
Choline chloride	100.0 mg.
Inositol	10.0 mg.
Biotin	0.01 mg.
Folic acid	0.02 mg.

strated that rats on purified rations do not need preformed niacin in the diet.

In the early studies with the dog, diets containing considerable amounts of corn had been used. However, it had also been demonstrated that blacktongue could be produced in our animals on purified rations containing no corn. When it was possible to study the niacin requirements on the two rations in a more quantitative way, it was found that the niacin requirement was higher when the rations contained an appreciable amount of corn (2). Rats were, therefore, fed rations with and without added corn. The composition of the ration used is given in Table 1. When the rats were fed the basal ration containing 15 per cent casein and devoid of niacin, they grew rather well. If we used sixty parts of this ration and forty parts of corn or corn grits, the animals grew very poorly. If 1 mg. of niacin per 100 gm. of ration were added, growth equal to that obtained on the basal ration was obtained (3). Typical results are given in Table 2. In other words, it was clearly demonstrated that corn, when fed under these conditions, was responsible for the production of a nutritional deficiency and that niacin would prevent the deficiency. When other cereals were used, this effect was not obtained. In fact, rice actually contains less niacin than corn, but when rice was fed under the same conditions, no retardation in growth could be demonstrated (4).

Some immediately made the suggestion that corn contained a toxic factor since this idea had been expressed many times during the early work on pellagra. This idea did not impress us, because we soon found that when we used starch or dextrin in our basal ration in place of sucrose, the retardation due to corn was not nearly as great. This led us to suspect that the production of niacin or other compounds by the bacteria in the intestinal tract played an important role. When the level of casein was increased, no retardation in growth resulted. The casein was highly purified without causing any change in results.

TABLE 2

Effect of corn grits on niacin requirement of the rat

RATION	AVERAGE GAIN PER WEEK gm.
Sucrose basal	25
Sucrose basal + 40% corn grits	4
Sucrose basal + 40% corn grits + 1 mg. niacin per 100 gm. ration	27
Sucrose basal + 40% corn grits + folic acid concentrates	5

Other proteins seemed as effective as casein except zein from corn (5). This immediately suggested that tryptophan might play a role, since zein is much lower in tryptophan than the other proteins tried. Upon the addition of 50 mg. of tryptophan per 100 gm. of ration, results exactly comparable to those observed upon addition of 1 mg. of niacin were obtained. No other amino acids showed activity. In all of our studies, we have found tryptophan and niacin to give comparable results. Figures for the tryptophan and niacin supplied by different rations and the corresponding rate of growth of rats fed these rations are shown in Table 3.

Further work has shown that other proteins low in tryptophan, such as gelatin, produce the same effect as that observed with the corn rations. In fact, if we used a ration containing 9 per cent casein and added 2 per cent of an acid-hydrolyzed casein, a marked retardation in growth occurred, and this retardation was corrected with either niacin or tryptophan (6). If 2 per cent unhydrolyzed casein was added, an increased rate of growth was obtained. The toxic effect of the acid-hydrolyzed casein was not due to any injurious substance formed during the hydrolysis procedure, since a mixture of free amino acids compounded to be equal to 2 per cent of the acid-hydrolyzed casein produced the same effect. Typical results are given in Table 4. Apparently in the absence of tryptophan, certain amino acids have a definite injurious effect when fed at increased levels and in the free form. Upon studying individual amino acids it has been found that threonine, phenylalanine, and glycine are the most active in this respect.

Since it is well established that the feeding of tryptophan increases the excretion of niacin and niacin derivatives in the urine of the rat, tryptophan can apparently be converted into niacin (7, 8). This conversion may take place either in the intestinal tract, in the tissues, or in both places. Both tryptophan and niacin may be synthesized by the intestinal bacteria, and the balance of the free amino acids in the tract may affect this synthesis. The synthesis of niacin has been clearly established, since the excretion of this vitamin in the urine and feces may be much greater than the intake. It is possible that only one of the nutrients may be synthesized, but the lack of one will influence the need for the

TABLE 3

Effect of various cereals on growth in rats

RATION	TRYPTOPHAN CONTENT	NIACIN CONTENT	GAIN
	mg./100 gm.	*mg./100 gm.*	*gm./week*
Basal	180	0.01	29
Basal + 40% corn grits	118	0.27	7
Basal + 40% yellow corn	129	0.92	13
Basal + 40% polished rice	138	0.56	31
Basal + 40% whole rye flour	158	0.41	26
Basal + 40% rolled oats	168	0.41	28
Basal + 40% white flour	151	0.40	29

TABLE 4

Growth-depressing effect of amino acids

RATION	AVERAGE GAIN	
	−Niacin	+Niacin
	gm./week	*gm./week*
Basal (sucrose)	11	16
Basal + 2% acid-hydrolyzed casein	4	16
Basal + 2% casein	17	20
Basal + 2.4% amino acid mixture	4	16
Basal + .156% DL-threonine	2	20
Basal + .104% DL-phenylalanine	5	17
Basal + 2% glycine	5	16
Basal + 2% DL-alanine	13	14

other. The amino acid balance may affect the conversion of one to the other, and certain amino acids may interfere with enzymes that are active in the metabolism of one or both of the nutrients. It is also possible that the addition of one or more amino acids stimulates the metabolism of the animal and, therefore, precipitates a more severe deficiency of tryptophan. The synthesis of niacin and perhaps tryptophan by bacteria in the intestinal tract seems to be a logical assumption, since the use of dextrin in place of sucrose largely eliminates the toxic effect of the low-tryptophan proteins.

Rosen *et al.* (9) and Schweigert, Pearson, and Wilkening (10) have shown that vitamin B_6 deficiency reduces the conversion of tryptophan to niacin or its derivatives. Rats fed 100 mg. dl-tryptophan in addition to the basal ration excreted 810–2190 mcg. N′-methyl nicotinamide, while B_6-deficient rats excreted 180–435 mcg. per day. Niacin excretion was 95 to 430 mcg. per rat per day in the presence of B_6 and only 16 to 35 mcg. in B_6-deficient rats. The latter workers found smaller amounts were excreted when tryptophan was injected than when fed. They explain this difference on the basis of more rapid removal of tryptophan from the blood and, therefore, suggest that the changes occur in tissues rather than in the intestinal tract.

In addition to the synthetic action of bacteria, we may also deal with the destruction of niacin and related compounds. High fat decreases the niacin requirement (11), and high fat is known to decrease certain types of organisms in the tract.

Similar niacin-tryptophan relationships have been established in the chicken and in the pig. Wintrobe *et al.* (12) have shown that pigs do not require significant amounts of niacin when fed rations high in protein. In all rations containing 10 per cent casein, a niacin deficiency was observed, but no deficiency developed when the ration contained 26.1 per cent of casein. In chickens, a severe niacin deficiency was produced most readily upon feeding diets low in tryptophan and containing gelatin (13). It is important to point out that the tryptophan requirement of the chick has been found to be 0.18 per cent of tryptophan in the presence of adequate amounts of niacin (14). Thus, niacin cannot replace tryptophane in the diet, but it may function in reducing the total requirement when a certain level of tryptophan is present in the diet.

A clear cut niacin deficiency has not been produced in the monkey, although diets very low in tryptophan and niacin have been fed (15). Monkeys fed a purified ration very low in niacin but containing 18 per cent casein will eventually show a reduced rate of growth and a lower level of hemoglobin in the blood. However, this condition does not respond to therapeutic doses of niacin, but will readily respond to the administration of whole liver powder. Monkeys fed a ration containing 40 per cent corn grits, similar to that used for rats, develop a similar deficiency, but again no improvement can be obtained upon the administration of either niacin or tryptophan, although the animals will respond to whole liver therapy. It is clear, then, that the monkey requires an additional factor which is present in liver and milk, and that a deficiency of this factor may be precipitated by feeding rations low in niacin and tryptophan.

What do these results mean as far as human nutrition is concerned? In the first place, the results clearly establish the long recognized relationship between the consumption of corn and pellagra. It is unfortunate that corn happens to be low in both niacin and tryptophan and that corn has been used in diets containing relatively low levels of total protein. It is also clear that when corn is used, the deficiency can be counteracted to a large extent with niacin alone. In other words, the enrichment of corn grits with niacin is based on sound scientific information. You may ask, why use niacin rather than tryptophan? The answer is clear, since it would cost 400 times as much to use tryptophan as to use niacin; 50 times as much tryptophan is needed as niacin, and the cost of tryptophan is 8 times that of niacin.

The use of meat in the prevention of pellagra is also clearly evident, since it supplies both niacin and

a protein carrying a good amount of tryptophan. Meat contains 0.2 to 0.3 per cent tryptophan on a fresh weight basis or 1.5 per cent tryptophan in the meat protein (16). Rose (17) has recently estimated that the minimum tryptophan requirement for the maintenance of a nitrogen equilibrium in adult man is 0.15 gm. per day. He suggests that a safe figure would be closer to 0.3 gm. per day. One serving of meat will supply this higher daily requirement. Milk and eggs make their contribution to the prevention of pellagra largely on the basis of the tryptophan content, since their niacin content is very low. Casein contains approximately 1.2 per cent tryptophan. If this figure is compared with corn protein, which contains 0.6 per cent tryptophan, and zein, which contains 0.1 per cent tryptophan, it is very easy to explain why diets diluted with corn need to be fortified with tryptophan-rich foods, such as meat, milk, and eggs. We must also remember that Rose used adult male subjects in his studies and that the requirement may be higher during periods of growth. This is obvious from our studies with rats, since diets which produce a niacin-tryptophan deficiency in the growing rat will allow maintenance in adult rats for long periods of time. Milk may have an additional effect in the diet of children, since it appears to have a favorable influence on the intestinal synthesis of niacin.

Studies on the niacin-tryptophan relationship have also helped to establish the niacin requirement for human beings. There is no question but that there must be some synthesis of niacin in the intestinal tract of human beings. Ellinger and Benesch (18) have reported a definite reduction in the urinary elimination of N′-methyl nicotinamide in human subjects given succinylsulfathiazole. Denko *et al.* (19) have studied the excretion of several of the B vitamins by normal subjects on a restricted intake and found that the excretion of niacin in the urine and feces was approximately equal to the intake but did not show the large excess observed in the case of biotin and folic acid. Thus, there may be sufficient synthesis to alter the total requirement, but not sufficient to rely upon to any great extent. Benesch (20) has also demonstrated that anaerobic organisms may actually destroy niacin produced by aerobic organisms. Thus, the type of flora may have a very important effect on the total requirement, but in any case it is much safer to rely upon a definite dietary intake of niacin. The Food and Nutrition Board has suggested that the niacin requirement is ten times that of thiamine. If we go back to the rats on a high corn diet, we find that this figure is very nearly correct. The niacin requirement is 1 mg. per 100 gm., and the thiamine requirement is 0.1 mg. per 100 gm. of ration. Until we give greater consideration to the amino acid content of our diet, it is much safer to rely on a definite and rather generous niacin intake.

Furthermore, a level of niacin may have a very significant effect on the requirement of other factors, especially unknown factors. The synthesis of folic acid may be affected by the level of niacin in the diet. Recent work (21) has clearly demonstrated that a conditioned deficiency can be produced in the dog by decreased intakes of niacin. This conditioned deficiency will respond only to liver or to concentrated preparations of the pernicious anemia factor. These relationships are not clearly understood but certainly may have practical applications in human nutrition. I have already indicated that a secondary deficiency is produced in the monkey on low-niacin diets or on diets containing corn. Similar results have recently been obtained with the chicken (22). In this case, the chicks grow very well on synthetic diets but develop secondary deficiencies on natural diets. Most human beings exist on a wide mixture of natural foods rather than on restricted diets.

Finally, the original work has led to a conception of amino acid imbalance which may have considerable significance. In attempts to replace proteins entirely by amino acids, reduced rates of growth have been obtained which have been counteracted by the introduction of intact proteins. Woolley has shown that the activity of different proteins is similar to their strepogenin content as determined with *L. casei*. We found that weanling rats will grow at a rate of 3 gm. per day by using a mixture of ten essential amino acids supplemented with glutamic acid to provide a total nitrogen content equal to that supplied by 10 per cent casein. The addition of low levels of intact proteins at the expense of glutamic acid gave only a slight increase in the rate of growth. In the light of the work on amino acid imbalance, it is apparent that each amino acid must be supplied in optimum concentration before we can settle the need for accessory peptide-containing compounds. In fact, it has been found that the excretion of many amino acids in the urine is increased when proteins of poor quality are fed, even though total protein intake is less. This merely means that the amino acid pattern is not optimal for these animals.

The problem of liberation of amino acids from different proteins has also been initiated as a result of the original studies. The availability of protein hydrolysates and free amino acids will do much to clarify this relationship, but their use must be carefully guarded until we know all the interrelationships.

Thus, it is not possible to study one nutrient or a group of related nutrients without giving consideration to the entire diet. In this brief survey, we have seen that the niacin requirement of the living organism is affected by the amino acid intake, by the kind of carbohydrate, and by the level of fat in the diet. No attention has been given to variations in the mineral intake, but it would not be surprising to find some effect by varying the level of some of the minerals. Total nutrition is dependent upon the proper amount and ratio of each and all the nutrients.

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Effects of Bed Rest

A study of the effects of bed rest was made on four normal young men in a metabolism ward during a control period of five to seven weeks, an immobilization period of six to seven weeks, and a recovery period of four to six weeks. Throughout the study, the dietary intake was kept constant.

Nitrogen excretion began to increase on the fifth and sixth day of bed rest and reached its peak during the first half of the second week. Total nitrogen losses for the entire period ranged from 29.8 to 83.6 gm.

Both urinary and fecal calcium excretion increased during immobilization, maximum excretion being reached by the fourth to fifth week. Total calcium losses ranged from 9 to 23.9 gm. The calcium content of the urine doubled during bed rest.

During immobilization, there was also an increase in the excretion of phosphorus, total sulphur, sodium, and potassium. During recovery, there was retention of nitrogen, calcium, phosphorus, sulphur, and potassium. However, the recovery or return to control levels was slow.

From the results of this study, there would seem to be little danger to the average patient from unrestricted bed rest for at least the first two or three weeks. However, there appear to be a number of hazards if the patient is forced to remain immobilized for several weeks. The threat of urinary tract stone formation, the impaired response of the circulation to the upright position, the derangement of creatine metabolism, and loss of muscle mass and strength may become of real concern.—*Abstracted from "Effect of Immobilization upon Various Metabolic and Physiologic Functions of Normal Men" by John E. Deitrick, M.D.; G. Donald Whedon, M.D.; and Ephriam Shorr, M.D., in The American Journal of Medicine 4: 3, 1948.*

The Child's Idea of What and How to Eat[1]

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IN THINKING over my experience in the guidance of children over the past fifteen years, I am rather pleasantly surprised to realize that the incidence of so-called feeding-problems in children has steadily declined. Some kind of shift must have occurred to bring about this change. In my own professional training I recall instructions which were fairly cut and dried as to what, how much, and when to feed the baby. It seemed to me at the time that we too often lost sight of the child, that we were not giving enough consideration to *how* the child received the food we thought he ought to have. Mothers and nurses doggedly followed feeding instructions even when the child was trying to tell them how he felt about them. Fortunately, mothers (and some pediatricians) started to think for themselves and began to wonder if the child might not be speaking a truth. When we began to make a record of mothers' reports about feeding, we were frankly astonished to realize that a similar pattern would repeat itself in different children at the same age. As an example, the reduction in appetite in the second year of life following the more usual robust infant appetite was found not only in one child but in many children and, therefore, came to be expected.

The real shift in feeding practices has come because parents began to listen to their children. Today they also want and often have knowledge of what to expect. Thus, they are forewarned and can more easily accept their own child's demands as valid. I can think of many pre-school children who might have developed real feeding problems under the old handling. They have their ups and downs, to be sure, but they are always supported by the understanding care of a mother who not only knows what to expect but also what to do about it.

THE PRE-SCHOOL CHILD

Let us look into some of the demands which occur so repeatedly that finally we realized there might be some sense to them. I am going to start with twenty-one months of age, since more definite preferences occur at this age and also since this is a common age for feeding problems to begin. Some children of twenty-one months show such acute taste discrimination that they can tell the difference between one brand of canned food and another.

By two years of age, the child is beginning to name foods and, therefore, can give a better indication of what he wants. Also with his free use of the word "no," he can handle any refusals. Carrots and beets, especially carrots, are the more commonly preferred vegetables. Probably both color and sweetness are involved in this choice. Butter and cheese are also favored foods. As early as fifteen to eighteen months, a mother should watch out for the child who is going to take butter by the handful. Though he has little language equipment, he will call for "maw bu-bu" at two years of age. This preference for butter seems most marked up through two and a half years of age. Interestingly enough, milk shows a rise at three years of age. What about our slogan of "a quart of milk a day," especially for the one-to-three-year-old when the child has gone off the bottle? Why not face the facts and consider the cheese and butter that many children are consuming when they may be refusing their milk? I have cut the slogan down to "a pint a day."

At two to two and a half, when chewing is becoming quite well established, meat becomes a very real favorite. Crispy bacon, however, is often favored from one year of age, and in periods of low appetite, bacon usually stands secure and can be eaten day after day if the mother isn't too concerned about variety. Two and a half years of age is indeed a stage of real food jags, especially since the child demands the same food day after day. To serve stewed apricots day in and day out for a period of three months is truly hard on the mothers who think in terms of variety. We had one mother, a dietitian, who had one of the worst food-jag boys that we have had. I truly felt sorry for that mother because she had to change so many of her trained ideas.

[1] Presented at the 30th Annual Meeting of the American Dietetic Association in Philadelphia, on October 15, 1947.

The age of three years marks a temporary break-up of the strong, over-channelized desires of the previous year. Desserts and sweets are now more desired. This is the first age when green vegetables are more acceptable, especially raw vegetables, raw carrots, raw beans, raw peas, and even raw potatoes. The child likes to chew these and often likes the taste better than when these same vegetables are cooked.

The four-year-old returns not only to food jags but goes on food strikes. It is a great pleasure to the mother when the child begins to relax at four and a half to five years of age and is less demanding and more amenable in accepting the foods that are on hand. He is even influenced by the food habits of others, by the radio broadcaster, as well as by the dietitian who tells of the high vitamin content of certain foods. But he plainly states that he likes plain cooking. Gravies, casseroles, and even puddings are often refused. Cooked cereal, which has often continued to be in disfavor from the lowered appetite period of the second year, is rather seriously refused at the age of five, by even the few who may still be accepting it, unless it is fed by the mother.

THE SCHOOL-AGE CHILD

Six shows even stronger preferences and refusals. One unfortunate experience with a certain food, such as a stringy texture or a rim of fat on the child's meat, might "put him off" that food for some time. The same type of thing happens in his adjustment to school. One unfortunate experience at school, such as being asked to count the children as he passes the crackers, when he doesn't know how to count very well, will be reason enough to refuse school. On the whole, he's "off" desserts, especially rice pudding and custards. This may be because he's not a very good "finisher" at six. But he won't starve. If he is just fed peanut butter and carrot sticks and then some more peanut butter and more carrot sticks, he will really do very well. This passion for peanut butter becomes even stronger at seven and eight. I frankly feel sorry for the child who is allergic to peanut butter for he misses much sheer enjoyment.

By seven, the child will at least cooperate in gulping down a disliked food, hoping he won't taste it on the way. By eight, with his increased appetite and an increased venturesomeness, he is ready to taste almost any food. But he still doesn't like casseroles. One eight-year-old complained, "Why did they have to spoil that beautiful ham with that awful cream sauce?" Eight may refuse chicken if he has seen one killed, and he still doesn't like fat on his meat. I recently met an American mother married to a Swede who reported that this latter bit of information saved their household from a serious rift. The Swedish father wasn't going to let his eight-year-old son grow up a namby-pamby and was determined not to give in to the child's whim even to the refusal of fat meat. The father calmed down when he saw the above statement in print and withdrew his objection.

By ten and eleven the child thinks about food, dreams of food, and in fact would like to eat all the time. The problem then shifts to the question of how to control the food intake. This problem may arise as early as eight years, especially with boys who become obese and are then open to much taunting from their contemporaries. Restricting them to one helping of each course may be all the control that is needed.

ATMOSPHERE AT MEAL TIMES

Respect for the choice of food is not, however, the only side of a successful eating pattern. How and where a child eats his meal is also an important part of eating. There are some children, especially boys, who demand to feed themselves, usually with their fingers, at one year of age. They do an amazing job, messy as it is, and will accept no assistance. The fifteen-monther wants at least to dabble with his own spoon as he is being fed. Or, he likes his mother to fill his spoon and then wants to support the handle of the spoon himself as she helps to lift it to his mouth. By twenty-one months, the child may be so sensitive to peripheral stimuli—for instance, the sight of his dessert, the father coming home, and so on—that the distraction may not only interrupt, but terminate his meal. That is why it is wise to feed him in his room at this stage—and on through three-and-one-half to four years of age with recurrent periods up to seven years.

Many people disagree with me on this. They feel that the child should learn to eat with the family group, and also that it is more work to feed the child in his room. Somehow they forget the wear-and-tear on themselves when a child is at the table. The antics of the fifteen- to eighteen-monther in his demand for everything in sight may be amusing but very exhausting to those at the table.

Then comes the dawdling and the necessary coaxing and cajoling of the two- to three-year-old. *If* the parents give up their meal hour to the children, success may be possible. But a family dinner is a complicated social situation often too much for the young child. His eating habits build up more smoothly when he is fed apart from the family group, and he often feeds himself better. The two-year-old may even want to eat alone in his room and may tell his mother to "go way." Some two-year-olds still need to be fed, and the "sweet eaters" may do better with a spoonful of dessert between the spoonfuls of their main course. A few who are especially slow, dawdling eaters may eat better when they are read to or told a story. This does not mean that they need stories for all meals or for a prolonged time.

By two and a half years, certain rituals may be

set up to which there is a need for adhering. An egg may be accepted at supper time but not at lunch. This is the age when between-meal snacks are in great demand. Some children eat more food between meals than at meal time, especially if these snacks consist of crackers, dried fruit, and fruit juices.

EATING WITH THE FAMILY

By three and one half, the child is often ready and wants to come to a few family meals. Breakfast is often the best meal with which to start this pattern. By four, some eat better at the table than alone, but on the whole they have difficulty not to let their talking interfere with their eating. They do not sit well, and they invariably interrupt the evening meal with a trip to the bathroom which they have loudly announced. The four-year-old is ready to graduate from his room to the kitchen and is stimulated by his sense of promotion, but at five, the child does better if he doesn't have too many meals with the family group. He usually feeds himself completely but may need help toward the end of the meal. Six is a frank menace both to himself and others at the family table, especially at the evening meal. He can't sit still, he swings his legs vigorously, he spills his milk, he eats with his fingers, and is usually sent away from the table when his father can't tolerate him any longer. But he relishes a tray in his room, especially by his radio, and eats peacefully and well.

From seven on he becomes a part of the family group. Eight not only eats more, but he "wolfs" his food.

INDIVIDUALIZED EATING PATTERNS

Now I would like to touch on some of the individually different eating patterns. We need to know more about the personality factors that go with the starch eaters, the meat eaters, and the sweet eaters. Then there are the spicy eaters; they are the ones who often hit real eating snags at two years of age. They are often petite girls with high emotional tone. Even as early as one year of age, a little onion juice may make bland mashed potatoes acceptable for such a child. One finds that they accept salty foods, strong cheeses, olives, salami, lobster, mushrooms, avocado pears, and spicy sauces on spaghetti. I do not advocate that they be given these foods exclusively. But when one sees poor feeding patterns being built up with a too-bland diet, one recognizes the pick-up value of an occasionally more stimulating diet. These children also seem to eat better when they are given between-meal snacks. If children are too hungry, they won't eat. Often one finds that one or both of the parents of this type of eater has had a similar feeding history.

Much of this information may not be wholly relevant to the dietitian and her task. Yet I feel it would be very profitable for the dietitian to do some more definitive research, for example, on the question of self-selection. Dr. Clara Davis' study showed that the child was quite capable of making an adequate selection if multiple choices of protective foods were offered. Does this hold true when he isn't given multiple choices? Are butter and cheese adequate substitutes for milk? Is there any reason why a child cannot restrict himself to one vegetable or fruit at a time, or to raw vegetables?

The hospital dietitian would, I feel, receive great benefit from a full feeding history on a child, with especial emphasis on his current diet. This does not mean, however, that she should cater at once to the child's desires. It would even be interesting to see how far you could make the child deviate from his home pattern.

I saw a two-year-old eat vegetables at the Vassar summer school much to her mother's amazement. As soon as she reached home she again refused them, and when asked why, she told her mother that she only ate them at Vassar. She then followed the more usual course of a slow vegetable intake. Often the nursery school and the hospital are too prone to criticize the mother for her failures when the child is really acting very differently at home and abroad.

Eating may be better in the hospital than in the home, not only because of the newness of the experience, but because the quietness and "apartness" are conducive to good eating. But one may run into poor eating with the hospitalized child because he receives too little stimulation. Maybe the same type of quiet activity with books and music before meals would serve as an *aperitif* to the sick child, whereas it serves to calm the well child.

The dietitian needs to know that other forces than the diet may be at work. The twenty-one-month-old child may refuse his food because his accustomed bib or spoon has been changed, the two-year-old because the dishes are different or maybe the colors don't match. The two-and-one-half-year-old may be very disturbed because his meat touches his potatoes. Each food according to him needs to be discrete. The sectioned plates are of help here.

The dietitian should also be aware of the difference between the poor and the good chewers. Some children need to continue with the puréed foods even as late as three to four years of age. They choke on the tiniest lump, but they will chew crisp foods, like bacon and toast, usually from the age of two. Trying to force them to accept more solid food only brings on vomiting. Their course seems slow, but the development of their eating mechanism is slow.

Be ready to listen to the child. He often talks more sense than we realize. He needs experience in eating as in everything else, but one should consider for what eating experience he is ready.

Eight Centuries of Anglo-Saxon Pies

ENA M. MORRIS, R.N.

NEVER to wonder about pie, except to wonder what kind is to be served for dinner, is to miss a tale of romance—a tale of banquets prepared by two thousand cooks in one kitchen, of dishes served under the supervision of a steward riding horseback around the banquet hall, and of dishes grotesque enough to replete the ribald humor of the Renaissance. Because you do not have to bolt your doors and pull your shades to eat mince pie at Christmas time, you take the pie for granted. Yet colonists in Massachusetts were once fined and watched for years if they were caught eating Christmas pie. The story of a nation's eating habits makes a livelier tale than the record of its wars; and the history of the pie, stretching back about eight centuries, is a history now repulsive, now absurd, but never dull.

The first pies originated in England around the twelfth century and were of meat, fish, or game baked in a crust called a "coffyn" (1). Not until the time of the American Revolution did the name change from "coffyn" to "crust." These early pies had a predominance of thick crust, at the expense of filling. The word "pie" appeared in Latin context in 1303 and was a well-known popular word by 1362. The only word outside the English language which was related to "pie" was the Gaelic "pighe" from England and Lower Scotland a half century earlier, and many scholars hold that "pie" was derived from it.

On glancing through an old Roman cook book, one might acquire a misconception about the origin of pie. In J. D. Vehling's translation of the *Apicius* manuscript from imperial Rome (2), several pie recipes can be found. However, the Roman pies were not really pies, but sauces baked in shallow pans. Vehling, for example, translated *patina de cucubitis* as pumpkin pie, but the recipe is for a sauce, the literal translation of *patina* being "a pot or cooking pan." The *patina de cucubitis* was made thus: ". . . stewed and mashed pumpkin is placed in the pan [or pie dish] seasoned with a little cumin essence. Add a little oil; heat [bake] and serve."

The English origin of the pie is commonly accepted. Warner (3) placed its beginning in twelfth-century London. At that time, pies were on sale in the cook shops, most of which bordered Eastcheap Street, the street made immortal by Falstaff, Prince Henry, and the Boar's Head Tavern. Here in the East End of London near the Tower and the Thames, taverns and cook shops catering to every taste stood side by side, drawing the humble workers who were not attached to feudal estates, crowds of petty criminals, and traveling noblemen in town on business or en route to the continent. The cooks cried, "hot ribbes of beef rosted—pies well baked—and other victuals." People dubbed one end of Eastcheap Street "Pye Corner" and the other "Pudding Lane." When the street burned from one corner to the other in 1666, people who had long frowned upon the gluttony which characterized this area regarded the destruction as a manifestation of God's wrath.

Warner (3) recorded the dining manners, recipes, and menus of these early centuries. He wrote of the banquets during the time of the Crusades: "A spirit of parade, and romantic gallantry presided over the very feasts of these ages, which, though it might appear awkward, and perhaps ridiculous at present, had then the good effect of . . . preserving a sense of decorum, generosity, and politeness, that formed a check on the licentious manners of a dark unlettered age" (4). The steward, for centuries a nobleman of highest rank, rode horseback around the banquet hall before the serving began. He then dismounted and, preceded by trumpets and followed by knights and ladies, carried in the chef's masterpiece. If the celebration were a Christmas banquet, he sang a carol while he walked.

Recipes for the pies those banqueters ate, such as this one (3) for a lenten tart, are quaint now:

> Take figges and raisinges, and wassh hom in wyne, and grinde hom, and appuls and peres clene pared, and the corke tane out [the cores taken out]; then take fresh samon, or codlynge, or hadok, and grinde hit, and medel hit al togedur, and do hit in a coffyn, and do therto pouder of gynger, and of canelle, and clowes and maces; and plaunte hit above [ornament it on the top] with pynes or almondes, and prunes, and dates quartert, then cover thi coffyn, and bake hit, and serve hit forthe.

Another old recipe was called "tart de bry" (3):

> Take rawe zolkes of egges, and gode fat chese, and dresse hit, and medel hit well togedur; and do therto pouder of gynger, and of canel, and sugar, and saffron, and do hit in a coffyn, and bake hit toforesaid, and serve hit forthe.

All of the early pies were spiced with a lavish hand. Favorites were pies of eel, porpoise, and game, all mixed with an astounding variety of ingredients that would be offensive to a modern palate. These concoctions were baked in iron ovens (called "bake-stones"), which were hung by means of iron bars attached to the top of the fireplace (4).

The kitchen in the home of a nobleman was an immense room. In Stanton-Harcourt, a home built by an Oxford nobleman before the reign of Henry IV, the kitchen was 29 ft. square, with a 60-ft. ceiling. Seven-in. holes in the roof allowed the smoke to escape from the two fireplaces (4). The kitchen of Richard II was a huge room in which two thousand cooks and three hundred servants were employed; those were the days of great banquets, and ten thousand people were fed daily at the King's tables.

The master cooks of Richard II's kitchen left a cook book, *Forme of Cury*, full of mixtures that looked odd indeed to the scholars who deciphered some of them. This book, which came out after the wedding of Henry IV and Jane of Navarre, widow of John de Montfort, Duke of Britanny, in 1403, contains the menu of the wedding feast. The menu included "lampreys in paste" or eel pie, and every one of the six courses closed with "sotelties," curious devices made of paste, sugar, or jelly. The "panteryse coronys for a sotelte," which closed the second fish course, were probably paste figures of crowned panthers. The "egle coronys: in sotelte" at the end of the third fish course are believed to have been crowned eagles made of paste (3).

During the reign of the House of Lancaster, advances in the varieties of foods and their cookery continued. Flesh commonly used during the fifteenth century was that of whale, porpoise, seal, peacock, crane, swan, and heron (5). The custard pie was known in 1450. Because the English had not yet learned to beat eggs, they ran eggs and cream through a strainer repeatedly "till hit be so thik that it woll bere hem self. . . ." After "faire coffyns of paast" were baked with prunes and dates, the liquid, sugar, and salt were put in the coffyn and the whole pie put "into the oven ayen, and lete him bake till they be ynogh. . . ."

By the beginning of the sixteenth century, the porpoise pie, which was said to have tasted oily and putrid, had disappeared from English tables. The prized dishes of the day were boar's head and boar's-head pies. Ellwanger (6) explains how the boar's-head pies once came to England through the machinations of Queen Elizabeth's governor at Flushing in The Hague, Sir Robert Sydney. The homesick governor having pleaded in vain for a leave of absence hit upon a plan to influence the Queen's ministers to intercede for him. He sent his wife a shipment of these boar's-head pies, which she was to deliver to the ministers of the Queen. The pies, delivered by Lady Sydney to Essex and my Lord Treasurer, made the desired impression. Just as Sir Robert had hoped, the ministers were pleased with the dish and pleaded with Queen Elizabeth when the next petition arrived from The Hague. The Queen was not moved, which led Ellwanger to conclude that Elizabeth herself did not partake of the pies. That pies shipped by sailing vessel could make a favorable impression suggests the idea that the excessive use of condiments may have been a necessary disguise of flavor in the days of no refrigeration.

It was during the reign of Elizabeth that the idea of a new kind of filling for pies was conceived. Since at this period sugar for the first time in English history became readily available, the apple pie came into existence, starting a long line of fruit pies. *A Proper Newe Booke of Cokerye*, written by an anonymous author in the sixteenth century (7), has a recipe for green apple pie, the filling of which is not much different from the apple pie of today. The apples were boiled with water, butter, and saffron. Flour, the whites of two eggs, cinnamon, sugar, and ginger were added to the apple sauce. To make the crust, the author directed, ". . . take butter and yolkes of egges and so tempre the flowre to make the paste." The strawberry tart, described in the same book, was a baked dish of strained strawberries, egg yolk, bread crumbs, sugar, and butter. References to "long coffyns" were directions for one-crust pies.

Other pies of the era sound less appetizing. The cabbage-lettuce pie was made of boiled, salted cabbage-lettuce, egg yolks, artichokes, and scalded sorrel. When the pie came out of the oven, white wine, sugar, and thickened eggs were poured inside the crust. Another called the "olio pie" was made of veal, suet, herbs, anchovies, artichokes, chestnuts, and sliced lemon or grapes. The "battalia pie" contained chicken, squab, rabbit, tongue, and oysters (4).

Most of the space in the cookery books was devoted to pies of meat, game, and fish. The fruit pie was too new to have assumed widespread popularity in the Elizabethan era. The yeoman was still eating food inferior to that of the nobility and the merchants, but his meals were quite varied. His farm furnished him with the materials for pies of goose, capon, turkey, pork, veal, and apples (4). Never in all his history had the Englishman enjoyed such prosperity. Never had he been so comfortable, so well fed, and so well housed.

He was as vulgar as he was prosperous. Uncouth indeed were the noblemen who moved in the Rabelasian courts of Henry VIII and Elizabeth. Hence an extraordinary pastry gained widespread popularity during the sixteenth century. The Oxford *Dictionary* refers to pies of "doubtful or undefined uses" (1) appearing in the sixteenth century. Warner (3) was more explicit:

> The table also exhibited strong proofs of this grossness of manners, which was not confined indeed to England alone, but pervaded the greater part of Europe. Hence arose an extraordinary species of ornament, in use among both the English and French, for a considerable time; representations of the *membra virilia*, *pudendaque muliebria*, which were formed of pastry, or sugar, and placed before the guests at entertainments, doubtless for the purpose of causing jokes and conversation among them: as we at present use the little devices of paste, containing mottos within them to the same end.

Another favorite joke among the Elizabethans, the Almaine leap (7) illustrates the rough humor of the nobility before the reform:

> A vast dish, broad and deep, was filled with custard and placed on the table, and while the company was busily employed in despatching their meal, a Zany, or Jester, suddenly entered the room, and springing over the heads of the astounded guests, plunged himself into the quivering custard, to the unspeakable amusement of those who were far enough off from the tumbler not to be bespattered by this active gambol.

After Elizabeth came the reform in manners, which made its influence felt in the dining halls. With the Reformation and the Renaissance came the gradual decline of the pompous banquets.

England's social struggle began with the reign of James I in 1603. The Puritans were loud in their demands, and the vacillating policy of James I antagonized both Puritans and Catholics. The heavy hand of Charles I aggravated the situation still further, dividing the country into two camps of fanatics. Earlier Puritans had been reasonably tolerant; but under Charles I, no moderate groups could be found. When the Puritans came into power in 1642, one of the first acts of the Long Parliament was the closing of all theaters. In 1647, parliament prohibited the celebration of Christmas and the saints' days. Cromwell's major generals were busy enforcing blue laws.

With the restoration of the monarchy, the pendulum swung all the way back. Charles II, however, was the last of the pompous and vulgar monarchs. William and Mary lent their influence to the reform of morals and manners. More influential than the monarchs in making gentlemen of the English were the great essayists of Queen Anne's reign—Addison and Steele (8). The decline of the fantastic banquets can, then, be laid at the door of the Reformation and the Renaissance.

During all this social unrest, what of the cooks and the pies? Looking back on the reign of James I, when the reform had just begun in earnest, one can perceive little change. The outstanding pie during his reign was by no means commonplace—a gruesome dish of human flesh. In 1624, the English burned at the stake a man who had been killing infants, salting their flesh, and baking them in pies (1).

A little less peculiar were some of the pies served while Charles I was king. The animated pie appealed to those people in a period when a love for the grotesque was fashionable. The most famous of the animated pies was served to King Charles and Queen Henrietta Maria by the Duke and Duchess of Buckingham in 1630. The monarchs were being entertained at dinner at Burghley-on-the-Hill. A giant pie was placed upon the table and cut. Out stepped Jeffery Hudson, 18-in. dwarf, perfectly proportioned, all dressed in satin. Hudson caught the Queen's fancy and, until the end of his life, remained in her household and her service (9).

A change could be noted while Charles I was in power. For the first time, a cook book was written with the tastes and purses of the middle class gentry in mind when, in 1654, Joseph Cooper, head cook to the King, published his book, *The Art of Cookery Refined and Augmented* (4). No earlier culinary writer had ever considered time and expense in compounding his recipes.

The Diary of Samuel Pepys (10) leaves an even better picture of foods of three hundred years ago. Pepys wrote of a dinner at the home of Sir William Penn, father of the founder of Pennsylvania: "Thence to dinner at Sir W. Pen's, it being a solemn feast day with him, his wedding day, and we had, besides a good chine of beef and other good cheer, eighteen mince pies in a dish, the number of years that he hath been married. . . ."

Pepys had this to say of another dinner: "We had a fricasee of rabbits, and chickens, a leg of mutton boiled, three carps in a dish, a great dish of a side of lamb, a dish of roasted pigeons, a dish of four lobsters, three tarts, a lamprey pie (a most rare pie), a dish of anchovies, good wine of several sorts, and all things mighty noble and to my great content."

In the seventeenth century, the pumpkin pie was an interesting addition (6): "Contrary to general opinion, pumpkin-pie is not an American but an old English dish improved upon by the New England housewife. Three hundred years ago, when known as the 'pompion,' they were made into pies by cutting a hole in the side, extracting the seeds and filaments, stuffing the cavity with apples, and baking the whole."

The New England pumpkin pie was starting through a period of change in the hands of the Puritan housewives. When they left England to find freedom of worship and to escape the persecution of Charles I, they brought with them their English recipes. Shortly, they varied the pumpkin pie by stuffing the cavity with milk, spices, and probably maple sirup for sweetening. Because the frugal housewives of New England objected to the amount of filling required, they adapted the pumpkin to a flat pie (11). Some of their recipes still called for mixing the pumpkin with apples. From colonial Massachusetts comes this complicated sample (12):

Take about halfe a pound of Pumpion and slice it, a handful of Tyme, a little Rosemary, Parsley and Sweet Marjoram slipped off the stalkes, and chop them smal, then take ten Eggs and beat them, then mix them, and beat them altogether, and put in as much Sugar as you think fit, then fry them like a froiz, after it is fryed, let it stand til it be cold; then fill your Pye, take sliced Apples thinne roundewayes, and lay a row of the Froiz and layer of Apples with Currans betwixt the layer while your Pye is fitted, and put in a good deal of sweet butter before you close it, when the pye is baked take six yelks of Eggs, some White-wine or Vergis, and make a Caudle of this, but not too thicke, cut up the Lid and put it in, stir them wel together, whilst the Eggs and Pompions be not perceived and so serve up.

By the second half of the seventeenth century, Thanksgiving Day was an institution in New England, and pumpkin pie was so much a part of the holiday that Colchester, Connecticut, delayed its Thanksgiving celebration until an overdue cargo of molasses, essential in making pumpkin pie, arrived by sloop from New York (12). Chicken and apple pies were also part of the Thanksgiving board. The colonists had apple tarts, apple mose, apple slump, buttered apple pies, puff apple pies, and apple crowdy—all different dishes (12).

Thanksgiving Day had a precedent set by the Church of England which, strangely, did not make it taboo in the colonies; but Christmas was no more popular in Massachusetts than it had been under Cromwell's protectorate. Because mince pie was part of the institution of Christmas, the Puritans labeled it "superstition pie" (1). They regarded Christmas with loathing, not only because it was part of the ritual of the Anglican Church, but also because, to them, its observance represented a dangerous drift toward Catholicism. For the Puritans, the spices in mince pie represented the gifts of the wise men to the Christ child, and the long rectangular pan in which the pie was baked was symbolic of the manger (11).

Lawrence wrote (13) of the attitude of the Massachusetts Puritans toward Christmas: "Indeed, many a sturdy Puritan seems to have believed that Christmas was the Devil's own holiday, and that any celebration of it was likely to cause laughter in Hell and weeping in Heaven. In the 'good old days' of the seventeenth century, this festivity had been sternly prohibited, but the reckless modern generation of 1722 showed signs of disregarding the prohibition."

Feeling against the holidays of the Church of England ran so high among the early Puritans that the Massachusetts books carried a statute from 1659 to 1681 making it a crime to abstain from work on Christmas or to eat more on that than on any other day. Woe unto him who ate "superstition pie" for Christmas. Anyone caught celebrating in any manner was fined five shillings and, what was worse, was subjected to surveillance for about ten years. By 1722, sentiment had begun to change, and even the governor, although his proposal raised a storm of wrath, wanted to adjourn the General Court for Christmas. Contact with other colonies and a willful younger generation were breaking down the old taboos (13). When the mince pie did return to Massachusetts, it was baked in round pans.

The potato, too, was under a cloud of suspicion, but for a different reason. It was too new to the colonists to be accepted without misgivings. Their recipes show what an effort they made to disguise the potato entirely. The potato pie was called the "secret pie"—not without reason (12):

Potatoes were ordered to be boiled and blanched; seasoned with nutmeg, cinnamon, and pepper; mixed with eringo roots, dates, lemon, and whole mace, covered with butter, sugar, and grape verjuice, made with pastry; then iced with rosewater and sugar, and yclept a "Secret Pye".

Elsewhere in America, the Pennsylvania Dutch women were making vast improvements in pies. With their natural culinary skill, they were improving upon the recipes they brought from the Palatinate and German Switzerland. They, more than any other group, made the pie what it is today. They increased the variety by adding many kinds of dried fruit for fillings, and they thinned out the crust of the pie. Gone was the thick rising crust of earlier times, when directions had called for rolling out one layer of paste after another, separating the layers with butter or sometimes with sugar. They began to use their home-rendered lard in the crust. Two pies which were most popular with these colonists were the mince pie with an eel base, and the famous shoo-fly pie, gingerbread baked in crust and sprinkled with crumbs (11).

The improvements made by the American housewives were not being paralleled in British kitchens. There, the most talked of cook books of the eighteenth century were by Mrs. Hannah Glasse and Mrs. M'Iver. The book of Mrs. Glasse bore the title, *The Art of Cookery Made Plain and Easy; Which far exceeds any Thing of the Kind yet published* (14). Most of her pie recipes were still for meat pies. Dishes were still most elaborate, and their preparation must have taken hours. More fascinating than the recipes themselves is the last chapter of the book, in which the author leaves the culinary world for the departments of medicine and insect extermination, giving directions for "a certain cure for the bite of a mad dog, receipt against the plague, how to keep clear from bugs, and an effectual way to clear your bedstead of bugs."

By 1817, a writer in *Blackwood's Edinburgh Magazine* declared that no one would think of constructing a dish on one of the recipes of Mrs. Glasse or Mrs. M'Iver (15). If he were qualified to speak for Scotland, he could not speak for England. Right out of the pages of *The Art of Cookery* materialized pies which produced the fond memories of the boyhood

of Charles Dickens—the Yorkshire Christmas pie and the Devonshire Squab pie (14). He reminisced of his boyhood experience with these pies (16).

> Two pies loom large out of the dimness of our past experiences. They were and will always be historical pies to us. The first of these was a goose pie; it came either from Yorkshire or Durham. It was a Titanic pie. It was beautiful to look at, and its seasoning was inspiration. It was a huge tomb of a pie, with brown figures exquisite in design (so ran our boyish mind) as the frieze of the Elgin marbles. On the raised lid, baked flowers and fruits were displayed, and the brownest flower of the nosegay served as a handle to open the pie. Within, coiled up and sleeping in concentric folds, lay all the eatable animals of Noah's Ark—so it seemed to our hungry and excited vision. Day after day we came upon fresh strata, differing in tint and taste, yet all embedded in a transparent jelly which only genius could have fused into such a mould. What a conglomerate it was! The mere catalogue of the contents of that pie would be a small volume. It was an edible Chinese puzzle. There were, first and foremost, two young twin green geese (removed in the very April time of their sweet youth), one innocent tucked inside the other—folded, as it were, in the arms of his bigger brother—and both embalmed in salt, pepper, mace, allspice, and an ambery agglutination of jelly. They were boneless; for so the learned embalmers had wisely willed it. Then, in a snug and stately corner lay a savoury turkey, brooding over a duck, a fowl, and a small covey of partridges, mingling and interchanging flavours. After a whole month's devotion to this pie, breaking into a bin of forcemeat with fine flavour of fresh herbs, we dug out, (after much labour and research) the rosy tongue of some unknown animal. Somewhat later, a hare rewarded our exertions, hidden in a retired nook where it had secreted itself with the well-known cunning of that timid but delicious creature. That pie was as full of pleasant and strange surprises as Caliban's island was full of "sweet sounds" that gave delight and harmed not.
>
> The second pie was a pigeon pie—a mere tartlet to the Yorkshire or Durham giant. It was an innocent little simple pie of pigeons, with three still legs sticking up in the center of the outer crust in a combined suicidal manner, or like the stalks of an extinct bouquet.

Leaving Victorian England, we come down to the present, when some connoisseurs contend that the best in English cookery consists of cold game pies. Sometimes in the southern and southwestern shires, one still finds pumpkin pie made by cutting the pumpkin into pieces, mixing half pumpkin and half apple in a shell (6). To this day, the pumpkin pie of England is flat and unspiced, a first cousin to the "*patina de cucubitis*" described in the *Apicius* manuscript.

The story of the pie from Eastcheap Street to Main Street is indeed a strange story, full of absurdities, romance, and change. The centuries lend enchantment to the revelers of Pye Corner, to the two thousand cooks of Richard II, and to the homesick governor at Flushing in the Hague. Many generations of housewives have contributed to the gradual changes. Types of food and their preparation have been profoundly influenced by politics, economics, and changing social conditions. The most radical changes in the pie can be ascribed to America, particularly the Pennsylvania Dutch housewife. Had every generation of cooks and housewives made pies exactly like those "mother used to make," our pies would still be rectangular, thick pastries with a little highly spiced porpoise, venison, or eel in the center.

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According to *The Trained Nurse*, pepper mixed with butter was supposed to eradicate diseases of the skin for credulous Europeans in the fourteenth and fifteenth centuries.

Green Chili Peppers as a Source of Ascorbic Acid in the Mexican Diet[1]

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IN THE last few years there has been a quickening of public interest in the welfare of minority groups in this country. This general movement has tended to stimulate a desire on the part of social workers in Los Angeles to raise the health standards of the city's large Mexican population. According to the United States Census Bureau, in 1943 there were 107,680 persons of Mexican descent living in this city in homes where Spanish instead of English was spoken. Most of these people were unskilled laborers. Much of the time they lived at a subsistence level and clung to their native Mexican habits.

Chili peppers are the one fresh vegetable used consistently in the diet of the lowest income Mexican group, and many varieties are available in Los Angeles. They are, therefore, an item of major importance from a nutritive viewpoint.

It has been shown that, in the raw state, peppers are a valuable source of ascorbic acid (1), but there is little information available concerning the effect of heat on this factor. Because chilies are cooked in many ways, it was thought that an investigation of the ascorbic acid content of chili peppers as affected by various methods of home preparation was needed in order to determine their nutritive value. Therefore, the present study was undertaken to determine ascorbic acid content for green chili peppers in the raw state and after peeling, stewing, baking and canning.

EXPERIMENTAL PROCEDURE

There are two general types of peppers, with reference to their flesh, namely the sweet or mild, and the hot or pungent. The hot varieties are both large and small and of many shapes. Because of their local abundance, Anaheim chilies—a long, green, hot variety were used for testing in this study.

Three different chemical procedures were chosen for measurement of ascorbic acid. They were: the Bessey method (2) developed for the colorimeter, the Loeffler and Ponting adaptation (3) of the colorimetric procedure, and the Ramsey and Colichman adaptation (4) of the potentiometric method. By using the three methods to analyze the chili peppers, it was felt errors in results arising from the use of hydrogen sulphide gas, the presence of dehydroascorbic acid, or from apparent ascorbic acid might be avoided.

The Bessey method was selected because it was designed to measure ascorbic acid in the oxidized form and to include the use of hydrogen sulphide for the determination of dehydroascorbic acid in the test solution.

The Loeffler and Ponting method did not measure dehydroascorbic acid but depended for accuracy upon the speed with which it could be completed.

The Ramsey and Colichman adaptation of the potentiometric procedure was selected for the following reasons. By using the potentiometer, possible visual errors in final test readings could be eliminated. Although the technique made use of the selectivity of 2,6-dichlorophenol indophenol dye for ascorbic acid, the calculations were based upon a stable potassium iodate solution. By the combined use of iodate and the dye (indophenol) solutions, the possible presence of reductones and allied substances could be detected and their approximate concentration determined. Included among these related materials are sulfhydryl compounds and thiosulphate (5, 6). However, it is believed that the organic substances most apt to interfere are sugar derivatives. These simulate ascorbic acid so closely in chemical and physical properties that they are not distinguished from it by the indophenol method of analysis unless a specific technique, such as the Ramsey one, is used for their measurement (7–10).

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In carrying out the experimental procedure, green chili peppers were first assayed for ascorbic acid in the raw state and after peeling, stewing, baking, and canning by use of the Loeffler and Ponting method. In order to check the accuracy of the findings, like samples of raw and stewed unpeeled chilies were then tested by the three methods and a comparison was made of the results.

In the case of the raw peppers, representative samples were obtained by cutting the peppers into four lengthwise strips, and portions from opposite sides were used in each testing procedure. The samples were weighed leaving each piece as nearly whole as possible. They were then mascerated in the Waring Blendor in an acid solution with a *p*H sufficiently low to assure a minimum of oxidation during the procedure (*p*H 2.4 to 3.7). The material was blended $2\frac{1}{2}$ min., allowed to cool for 2 min., and then mascerated for an additional $2\frac{1}{2}$ min., thus avoiding overheating of the sample. In 1945, during the work of the second summer of the study, all solutions were made up using water that had been redistilled in glass, and all cutting of the peppers was done with a glass-bladed knife.

To prepare the peeled chilies for testing, the pods were held in an open flame until the thin outer skin was thoroughly blistered. They were then wrapped in a towel and allowed to stand 10 min., by the end of which time the peeling had softened and could be removed from the flesh. The skin did not always separate easily from the pods and some bruising of tissues resulted. If the peppers were dipped in hot mineral oil, the skin slipped off with less tissue destruction, but the first method of peeling was used in the experiment because it is preferred by the Mexicans. They believe that the oil which clings to the peppers makes them difficult to handle and gives an unpleasant consistency to the finished product.

The peppers to be stewed were seeded and weighed raw as stated above. Some were stewed with peel and some without. Ten-gm. portions of the chili were used. The weighed sample was cut crosswise into approximately $\frac{1}{4}$-in. strips. The pieces were allowed to fall into a previously weighed beaker containing 45 cc. of boiling water which was enough to cover the pepper. The boiling was continued in the open beaker for 20 min. At the end of the boiling period, the pods were soft and the excess liquid evaporated leaving only a thickened gelatin-like substance clinging to the pods. The baked peppers were prepared by baking previously seeded and weighed chilies for 30 min. at 375° F. Both the stewed and baked peppers were reweighed after cooking. Thus the addition or loss of water could be determined and was taken into consideration in calculating the amount of liquid needed to make the solution in the Waring Blendor up to constant volume, i.e. 250 cc. This technique assured no loss of vitamin through solubility in the stewed product, since the cooking water was all retained. Moreover, the method was in accord with the practice prevalent among the Mexican population of Los Angeles, since peppers are often used in stews or in other prepared dishes which are not drained before serving.

The canned peppers were handled differently because the pods would ordinarily be drained before being served. The peppers were weighed, then peeled and canned under pressure in accordance with the instructions given by the University of California Extension Service. Before testing, the canned chilies were drained; ascorbic acid determinations were then made using equal fractions of the pods and juice. A moisture determination run on the pods made it possible to find the amount of diluting solution necessary to bring the final volume of acid plus the liquid in the drained pods up to 250 ml. for homogenization in the Waring Blendor. As in the case of the peppers prepared by other methods, losses incurred by canning were related to the ascorbic acid content in the raw, unpeeled product.

RESULTS AND DISCUSSION

The effect of various home practices on the ascorbic acid content of Anaheim chilies as determined by the Loeffler and Ponting (3) method is shown in Table 1, and ranges and averages for raw and processed peppers assayed at different times (summers 1944 and 1945) are compared in Table 2.

The figures recorded in these tables show that in all cases there was a loss of ascorbic acid when peppers were cooked and assayed. There was considerable variation in the destruction of the vitamin, depending upon the method of cooking. The average loss of ascorbic acid was smallest for the stewed, unpeeled peppers. It was greatest for peppers which

TABLE 1

Ascorbic acid in chili peppers before and after various cooking processes

CONDITION OF SAMPLE	NUMBER OF SAMPLES	ASCORBIC ACID		
		Range	Average	Average loss
		mg./100 gm.	*mg./100 gm.*	%
Raw				
Unpeeled	17	110–250	172	
Peeled	8	116–201	141	18
Stewed				
Unpeeled	8	92–198	140	19
Peeled	8	84–193	119	31
Baked				
Unpeeled	8	14–134	75	56
Peeled	8	8– 96	47	73
Canned				
Peeled pepper flesh	8	12– 24	18	90
Juice	8	28– 57	42	76

TABLE 2

Comparison of ranges and averages of ascorbic acid content of raw and stewed green chili peppers under different methods of assaying

METHOD	YEAR OF ASSAY	ASCORBIC ACID				
		Raw, unpeeled chili pepper		Stewed, unpeeled chili pepper		Loss
		Range	Average	Range	Average	
		mg./100 gm.	*mg./100 gm.*	*mg./100 gm.*	*mg./100 gm.*	%
Loeffler and Ponting (3)	1944	110–250	172	92–198	140	19
Loeffler and Ponting (3)	1945	112–172	143	102–156	123	14
Bessey (2)	1945	109–168	140	98–149	123	12
Ramsey and Colichman (4)	1945	116–170	149	99–151	129	13

were peeled and canned under pressure, unless the juice in which the peppers were canned was considered. In that case the greatest loss was found in the baked, peeled peppers. There was a substantial loss of the vitamin when peppers were peeled. On cooking, the loss was greater in the peeled than in the unpeeled product.

Examination of the chronological listing of the results obtained by use of the three different methods of ascorbic acid assay (Table 3) indicates a fair degree of variability when the Bessey (2) and Loeffler and Ponting (3) methods were applied to identical samples and likewise when the Ramsey and Colichman (4) and Loeffler and Ponting (3) methods were used. The average figures presented in Table 2, however, show remarkably close agreement for the three methods. Such results indicate that the ascorbic acid of chili peppers must be quite largely in the reduced form and not the dehydro form. Moreover, the fact that the Ramsey and Colichman method showed scarcely any non-specific reducing compounds, proved that the latter were not a source of error in determinations by the other methods. Hence for the study of the ascorbic acid of chilies, any of the three methods employed would give satisfactory results.

The results reported here indicated a wide variance in the ascorbic acid content of raw Anaheim chilies within a given season and also that the ascorbic acid content of the same variety of peppers fluctuated considerably from year to year. This was in agreement with results reported by Lantz (1, 11) who showed, moreover, that the ascorbic acid content is affected by the type of soil in which peppers are grown, weather conditons, and maturity of the peppers. As peppers mature, the ascorbic acid content steadily increases.

In spite of the wide range in the ascorbic acid

TABLE 3

Comparison of ascorbic acid content of green chili peppers as determined by Loeffler and Ponting (3), Bessey (2), and Ramsey and Colichman (4) methods

DATE (1945)	METHOD	ASCORBIC ACID		
		Raw, unpeeled pepper	Stewed, unpeeled pepper	Loss
		mg./100 gm.	*mg./100 gm.*	%
August 8	Loeffler and Ponting	125	109	13
	Bessey	141	121	14
August 14	Loeffler and Ponting	138	118	14
	Bessey	133	122	8
August 15	Loeffler and Ponting	112	102	9
	Bessey	109	98	10
August 18	Loeffler and Ponting	144	125	13
	Bessey	150	126	16
August 21	Ramsey and Colichman	168	151	10
	Loeffler and Ponting	171	156	9
August 23	Ramsey and Colichman	170	141	17
	Loeffler and Ponting	163	142	13
August 27	Ramsey and Colichman	116	99	15
	Loeffler and Ponting	120	102	15
August 28	Ramsey and Colichman	121	102	16
	Loeffler and Ponting	122	107	12
August 29	Ramsey and Colichman	169	150	11
	Loeffler and Ponting	172	145	16
September 1	Loeffler and Ponting	158	127	20
	Bessey	168	149	11

content of peppers, raw chilies constitute an excellent source of this vitamin, averaging 152 mg. per 100 gm. of fresh material. This is approximately twice that of the citrus fruits, commonly regarded as the "best" sources of ascorbic acid. Even cooked chilies should be regarded as excellent sources of this vitamin, for the losses encountered by ordinary peeling and stewing did not exceed one-third of the original ascorbic acid content.

It was of some interest that each method of heat processing caused a decrease in the ascorbic acid found in the raw peppers. Other investigators, too, have reported decreases in ascorbic acid upon cooking various vegetables (12–14).

On the other hand, in a study made by Beswas and Das in 1939 (15) covering the effect of cooking on the chilies of India, a large increase in vitamin

value was reported for the stewed product. Similarly, McHenry and co-workers found increases in ascorbic acid resulting from cooking of Irish potatoes (16) and of snap beans and carrots (17). Their view was that ascorbic acid occurred in a form bound to protein as an ester-like substance which, on application of heat, was hydrolyzed and set free. Bessey (2), King (5), and Harris and Olliver (18) have suggested that the apparently enhanced value of the vitamin might be due to a more complete extraction of the cooked materials than of the raw ones, owing to the softening of the woody structure. Wokes and co-workers (7) offered as a possible explanation, the development during the cooking process of reducing substances other than ascorbic acid which would react with the indophenol dye to give a false ascorbic acid value.

The results of the work presented in this report rule out the last explanation fairly conclusively, however, since the Ramsey and Colichman method of assay was designed to determine such substances separately from ascorbic acid. Not only were the values obtained by this method very low, but they did not increase upon cooking the chilies.

It would seem that workers who found increases in ascorbic acid upon cooking of vegetables reported exceptionally low values for the raw product. Moreover, most of them employed the tedious hand-grinding method for extraction of the vitamin. The extra time and manipulation required for extraction of the vitamin from the raw vegetables could easily account for greater vitamin losses in the raw than in the cooked product. As stated above, in this study samples were weighed rapidly and as nearly whole as possible and were quickly mascerated in the Waring Blendor in an acid solution, thereby, minimizing oxidation. We are, therefore, in agreement with Bessey (2) and Harris and Olliver (18) that the apparent increases of ascorbic acid obtained upon cooking vegetables have been due largely to a lack of manipulative precautions.

SUMMARY

Green chili peppers were assayed for ascorbic acid in the raw state and after peeling, stewing, baking, and canning. Three assay techniques were used.

The results showed a mean ascorbic acid content of 152 mg. per 100 gm. for raw, green chilies. The average percentage losses were: for peeling, 18; stewing, unpeeled, 19; stewing, peeled, 31; baking, unpeeled, 56; baking, peeled, 73, and canning, peeled, 90.

Comparison of results obtained by different assay methods indicated: (a) no evidence for presence of dehydroascorbic acid in raw chilies, (b) very small amounts of interfering reducing compounds, and (c) no increase in such compounds upon cooking.

It was concluded that raw chili peppers were very high in ascorbic acid in comparison to other good food sources of the vitamin. Even though cooking and other handling losses of ascorbic acid were fairly high, chilies could be regarded as an excellent source of the vitamin in the diet of the American Mexican.

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Ascorbic Acid and Thiamine in Fresh and Frozen Lima Beans and Soybeans[1]

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THERE have been relatively few studies on the vitamin content of fresh and frozen Lima beans and edible green soybeans. In this paper, a study of the ascorbic acid and thiamine contents of raw and scalded Lima beans and edible soybeans as well as those stored in freezer-lockers are reported. Figures on the same lots within a single season and on the same varieties over a three- and two-year period, respectively, will be given.

EXPERIMENTAL PROCEDURE

The Fordhook variety of Lima beans and Bansei variety of soybeans were used. These were grown at Prosser, Washington, under irrigation. The beans were harvested, vined, iced, and delivered to the Pullman laboratory within 7 hr. after harvesting. They were then stored overnight at 32°F.

The first year, the Lima beans and soybeans were scalded for 2 min. in boiling water heated by live steam, cooled in cold water for 1 min., drained, packaged, frozen, and stored at 0°F. The following year, they were scalded by methods recommended for home use. Twelve 400-gm. samples were scalded in 2½ gal. of boiling water for 3 min., six lots being scalded in each lot of water. During the third year, only Lima beans were studied. They were scalded following the procedure of the second year, for 2, 3, and 4 min. A total of 6400 gm. were scalded for each time interval, half of which were cooled for 1 min. in cold water and half air-cooled by spreading out on a tray for 20 min. Each lot of Lima beans and soybeans was weighed before and after scalding and cooling.

Reduced ascorbic acid was determined by the method of Loeffler and Ponting (1) and dehydroascorbic acid by the Bolin and Book modification (2) of the Roe and Oesterling method (3). Thiamine was extracted as described by Moyer and Tressler (4) and determined as outlined by Conner and Straub (5). The vitamin values are expressed in terms of the fresh weight of the original raw samples.

RESULTS AND DISCUSSION

The data are presented in Tables 1 and 2.

The reduced ascorbic acid content of unscalded Fordhook Lima beans was 24.6 to 27.9 mg., and the dehydroascorbic acid content was 5.5 mg. per 100 gm. These reduced ascorbic acid values are similar to the averages reported by Tressler *et al.* (6), Walker (7), and Thompson and Mahoney (8).

The thiamine content of unscalded Fordhook Lima beans for the first year was 0.180 mg. per 100 gm., and for the second year, 0.267 mg. No pertinent data have been found in the literature concerning the thiamine content of Fordhook Lima beans, most of the data being reported on the Henderson Bush variety. The thiamine as reported, however, ranges from 0.117 to 0.325 mg. per 100 gm. (Rose and Phipard [9], Fellers *et al.* [10], Conner and Straub [5], Moyer and Tressler [4], and Clifcorn and Heberlein [11]).

The fresh, unscalded Bansei soybeans contained 14.3 to 15 mg. of reduced ascorbic acid per 100 gm. Burkholder (12) found 21 mg. per 100 gm. and Lee and Whitcombe (3) have reported 25 mg. The thiamine content, the first year, was 0.508 mg. per 100 gm., and the second year, 0.445 mg. Burkholder (12) found immature Bansei soybeans to contain 0.660 mg. of thiamine per 100 gm. of dry matter. Lee and Whitcombe (13) have reported 0.286 mg. on the wet basis.

Significant decreases in the amounts of reduced ascorbic acid and thiamine in Lima beans occurred during the processes preparatory to freezing—28 to 39 per cent for reduced ascorbic acid and 45 to 47 per cent for thiamine (Tables 1 and 2). This is in agreement with Tressler *et al.* (6) and with Wads-

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TABLE 1

Effect of scalding and frozen storage on Lima beans and soybeans

TREATMENT	REDUCED ASCORBIC ACID*		THIAMINE*	
	Amount	Loss	Amount	Loss
Lima beans				
	mg./100 gm.	%	*mg./100 gm.*	%
First year				
Fresh, raw	24.6		0.180	
Scalded 2 min., water cooled	16.8	32	0.095	47
Frozen, stored seven months	21.2	14	0.125	31
Second year				
Fresh, raw	26.7		0.267	
Scalded 3 min., water-cooled	19.2	28	0.146	45
Frozen, stored three months	17.2	36	0.153	43
Soybeans				
First year				
Fresh, raw	14.3		0.508	
Scalded 2½ min., water-cooled	13.3	7	0.439	14
Frozen, stored seven months	12.0	16	0.429	16
Second year				
Fresh, raw	15.0		0.445	
Scalded 3 min., water-cooled	13.9	7	0.378	15
Frozen, stored seven months	12.5	16	0.365	18

* Vitamin values calculated back to fresh, raw basis.

worth and Wilcox (14) who reported 33 per cent and 28 per cent loss of ascorbic acid, respectively. Moyer and Tressler (4) found that Lima beans lost 24 per cent of thiamine during preparation for freezing. During storage in a freezer-locker, the reduced ascorbic acid content decreased further, but there was little or no loss of thiamine. Jenkins *et al.* (15) have also reported little loss of ascorbic acid during freezer storage. A 54 per cent loss of thiamine in Lima beans during preparation and freezing has been reported by Fellers *et al.* (10).

The results of the cooling studies (Table 2) with Lima beans showed no consistent differences in ascorbic acid values between the two methods of cooling. Organoleptic tests also revealed no differences between the water-cooled and air-cooled lots. This indicates that air-cooling is satisfactory and would be preferred, where water-cooling is not carefully controlled, to prevent excess loss of water-soluble vitamins and minerals. During storage in a freezer-locker, losses were progressively larger in the lots scalded for longer periods of time.

The unscalded, frozen Lima beans showed less loss of ascorbic acid during storage than the scalded Limas. However, the unscalded beans had lost their fresh green color and showed a marked development of "off-flavor" and "hay-like" odor.

TABLE 2

Effect of scalding and frozen storage on the ascorbic acid content of Lima beans

TREATMENT	ASCORBIC ACID*			
	Reduced	Loss	Dehydro	Loss
	mg./100 gm.	%	*mg./100 gm.*	%
Fresh, raw	27.9		5.5	
Frozen, stored three months	20.3	27	5.7	
Frozen, stored six months	18.6	33	5.6	
Scalded 2 min., water-cooled	17.9	36	2.5	55
Frozen, stored three months	17.0	39	3.2	42
Frozen, stored six months	17.7	37	2.4	56
Scalded 2 min., air-cooled	19.5	30	2.6	57
Frozen, stored three months	18.0	35	2.8	49
Frozen, stored six months	17.5	37	2.8	49
Scalded 3 min., water-cooled	17.5	37	2.3	58
Frozen, stored three months	16.7	40	2.6	57
Frozen, stored six months	15.3	44	2.7	51
Scalded 3 min., air-cooled	17.6	37	2.4	56
Frozen, stored three months	15.1	46	3.1	44
Frozen, stored six months	15.7	44	2.4	56
Scalded 4 min., water-cooled	17.6	37	1.5	72
Frozen, stored three months	15.4	45	2.3	58
Frozen, stored six months	13.5	52	2.7	51
Scalded 4 min., air-cooled	16.9	39	2.1	62
Frozen, stored three months	16.0	42	2.8	49
Frozen, stored six months	14.1	49	2.6	57
Difference necessary for significance at 5% level **	0.6		0.4	
Difference necessary for significance at 1% level **	0.8		0.5	

* Ascorbic acid values calculated back to fresh, raw basis.

** Data were analyzed by the analysis of variance.

Dehydroascorbic acid in Lima beans (Table 2) was decreased 55 to 72 per cent during scalding and cooling. In general, there was a significant increase during three months' storage in a freezer-locker. However, after six months' storage, with the exception of the 4-min., water-cooled lot, there was no further increase over the level of the three months' storage period. The dehydroascorbic acid represented 12 to 16 per cent of the total ascorbic acid content in the scalded and frozen Lima beans.

In contrast to Lima beans, the soybeans (Table 1) showed relatively low losses in reduced ascorbic acid during procedures preparatory to freezing (7 per cent). Thiamine losses during these procedures were 14 to 15 per cent. An additional 9 per cent loss of reduced ascorbic acid and a 2 to 3 per cent loss of thiamine occurred during storage. A 40 per

cent loss of reduced ascorbic acid and no loss of thiamine during scalding have been reported by Lee and Whitcombe (13). They observed no losses during storage.

SUMMARY

Ascorbic acid and thiamine data are presented for the Fordhook variety of Lima beans and the Bansei variety of soybeans, in the fresh state, after scalding, and after storage in a freezer-locker.

Fresh Fordhook Lima beans contained 24.6 to 27.9 mg. of reduced ascorbic acid, 5.5 mg. of dehydroascorbic acid, and 0.180 and 0.267 mg. of thiamine per 100 gm., respectively. They lost from 28 to 39 per cent of the reduced ascorbic acid, 55 to 72 per cent dehydroascorbic acid and 45 to 47 per cent thiamine during the scalding and freezing procedures.

The reduced ascorbic acid losses were similar for all times of scalding and for all methods of cooling during preparation for freezing. During storage, the losses varied with the greatest losses occurring in those lots scalded for 4 min. No losses of thiamine during storage were noted. The air-cooled, frozen Lima beans when cooked were equal in quality to the water-cooled beans.

Fresh Bansei soybeans contained 14.3 to 15.0 mg. of reduced ascorbic acid and 0.445 to 0.508 mg. of thiamine per 100 gm., respectively. The soybeans lost 7 per cent of ascorbic acid and 14 to 15 per cent of thiamine during scalding and freezing procedures. There was a 9 per cent loss of reduced ascorbic acid and a 2 to 3 per cent loss of thiamine during freezer-locker storage.

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Avocados

Grades and standards for various food products have been established by the federal government and in some cases by state governments. It is not generally known, however, that avocados, grown in California, must meet a state requirement of 8 per cent fruit oil before they can be marketed. To be eligible for the stamp "Calavo," the fruit oil content must be 50 to 100 per cent greater. To insure the maintenance of these high standards for Calavos, scientific testing of representative grove samples is performed by the refractometer method by experienced laboratory technicians. Only fourteen out of ninety-nine varieties grown in the state measure up to the Calavo standards.

In nutritive content, the avocado is an unusual fruit, for it contains a generous amount of this fruit oil, not generally found in other fruits. It is this oil which accounts for the avocado's high energy value rather than the carbohydrate content, which is low. The oil is said to be 93.9 per cent digestible and thus provides energy in easily usable form. The fruit oil, too, is responsible for the smooth, mellow character and nut-like flavor of the avocado.

Tests have shown that avocados contain fourteen minerals, including iron, copper, sodium, potassium, magnesium, and calcium, as well as carotene, thiamine, riboflavin, niacin, pantothenic acid, biotin, ascorbic acid, tocopherol, and vitamin K. Another unusual fact about avocados is that they contain 2.1 per cent protein, which when broken down, results in the following amino acids: lysine, tryptophan, histidine, tyrosine, and cystine.—*Contributed by Ilma Lucas Dolan, California Foods Research Institute, San Francisco.*

Corn Meal and Macaroni Products Containing Dry Primary Yeast

I. Palatability and Acceptability[1]

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THERE has been recent interest in the enrichment of cereal products, especially with regard to the B vitamins. Dry primary yeast is an excellent source of the B vitamins and also of high quality protein, and it can be produced economically in large quantities from readily available raw materials. However, it has a distinctive flavor, and there is some question as to how much yeast can be added to cereals without altering the flavor, especially for recipes which contain few or no ingredients other than the cereal and liquid. In this investigation varying amounts of dry primary yeast were added to corn meal and to macaroni, both inexpensive and widely used foods, especially by certain population groups where the dietary is apt to be deficient in high-quality protein and certain of the vitamins of the B complex.

A number of workers have reported on the addition of dry yeast to foods. Carr (1) found that yeast could be added successfully to muffins, cookies, cakes, bread, and rolls. Sunderman, Kahn, and Schmitt (2), and Heller, McCay, and Lyon (3) found that yeast could be added to products, such as bean soup, chop suey, stews, macaroni with tomato sauce, baked beans, cheese dishes, meat balls, meat loaf, goulash, curries, and stuffed peppers, without adversely affecting palatability. The products they prepared were served in large industrial cafeterias. Sure (4, 5) has reported on the use of yeast in diets for rats and for humans. A high caloric sweet meat containing yeast was prepared by Spinella (6) and used successfully for hospital patients needing high-vitamin diets.

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PROCEDURE AND FINDINGS

Corn Meal Products

Both yellow and white corn meal were tested. The products scored were corn meal mush, corn dodgers, and corn bread.[2] The weight of 1 cup of yellow corn meal was taken as 148 gm., on the basis of a series of fifty weighed measurements. Each product was prepared to contain 0, 1, 2, and 3 per cent yeast by weight per cup of corn meal. The samples were scored daily for five days by six experienced judges. Each product was scored for color, flavor, odor, and texture on a scale which ranged from one to seven, seven being the most desirable. The average scores for the products made with yellow corn meal are given in Table 1. The results indicated that 1 per cent of yeast could be added to these corn meal products without altering their palatability, but that more than 1 per cent could be detected fairly readily. The scores for the corn dodgers were more erratic than those for the other two preparations. The judges stated that they found the corn dodgers difficult to score without bias, as they considered this product to be unpalatable even without added yeast.

Certain food preparation classes from the Department of Foods and Nutrition, Michigan State College, were asked to score the corn bread made with yellow meal containing 0, 1, 2, and 3 per cent added yeast, in order to obtain a consumer accept-

[2] These products were prepared as follows:

Corn meal mush: Stir ½ cup corn meal into 1⅔ cups boiling water. Add ½ tsp. salt. Cook in double boiler, 1 hr.

Corn dodgers: Mix 1 cup corn meal, 1 tsp. salt, 1 Tbsp. melted lard, and ⅔ cup water. Spread thinly in heavy, shallow, heated muffin pans. Bake 20 min. at 400°F.

Corn bread: Mix 1 cup corn meal, ½ tsp. soda, ¾ tsp. salt, and 1 Tbsp. sugar. Beat together 1 egg and 1 cup buttermilk. Combine wet and dry ingredients, adding 2 Tbsp. melted lard at the same time. Bake in 8 × 8 × 2 in. pan 18 min. at 450°F.

ance sample. Seven classes with a total of 117 students were given the four samples and asked to indicate which one they liked best and which one or ones they did not like. A summary of these results is given in Table 2.

The results obtained with the classes paralleled those obtained from the trained scoring panel. The acceptability decreased as the percentage of yeast increased. The sample containing 1 per cent yeast was quite generally acceptable, but many of the students gave comments on "a queer after-taste," or "bitter," "sour," "soapy," or "fishy" flavor for the products containing 2 and 3 per cent yeast.

The use of yeast in white corn meal products was tested in mush and in corn bread. Mush from yellow corn meal also was prepared simultaneously to check on differences between the white and yellow meal. The weight of 1 cup of white corn meal was taken as 140 gm., on the basis of a series of twenty-five weighed measurements. The average scores from these tests are listed in Table 3. The scores for the products made with yellow corn meal decreased as the amount of yeast increased. The products made with white corn meal were given lower scores than those made with yellow corn meal. The scores for flavor and odor for mush made with white corn meal decreased with the increase in yeast content above 1 per cent. The scores for flavor for the white corn bread decreased as the percentage of yeast increased, while the average score for color improved with increased yeast.

TABLE 1

*Average scores for products made with yellow corn meal containing various amounts of yeast**

YEAST	RATING FOR COLOR	RATING FOR FLAVOR	RATING FOR ODOR	RATING FOR TEXTURE
Corn Bread				
%				
0	5.9	5.5	5.4	5.0
1	5.7	4.9	5.2	5.0
2	5.1	4.1	4.6	4.6
3	5.2	3.5	4.4	4.5
Corn Dodgers				
0	5.4	4.8	4.4	4.6
1	5.3	4.6	4.0	4.1
2	5.3	4.7	3.8	4.3
3	5.1	4.6	3.6	4.1
Corn Meal Mush				
0	5.6	5.2	5.0	5.1
1	5.3	4.6	4.3	4.5
2	5.1	4.4	3.7	4.5
3	5.1	4.0	3.0	4.2

* Maximum possible score = 7.

Macaroni Products

The macaroni was prepared by the manufacturer. Various percentages of dry primary yeast were incorporated into the macaroni dough before extrusion and drying. The different samples contained 0, 2½, 3, 4, and 7 per cent yeast by weight.

The weight of 1 cup of dry macaroni was taken as 55 gm., from a series of twenty-five weighed measurements. The macaroni was boiled and served plain to a panel of experienced judges. This was repeated five times.

The average scores for the boiled macaroni are given in Table 4. There was a definite decline in the palatability of the macaroni with increase in yeast content. The macaroni became sticky in texture and grey rather than creamy in color as the amount of yeast increased. Also, the odor and flavor of the yeast were quite noticeable, especially in the samples containing 4 and 7 per cent yeast.

The macaroni samples were prepared as "macaroni and cheese," and as "macaroni with tomato, onion, and bacon," to see if these variations in method of preparation would mask the reduced palatability resulting from the addition of yeast. These products were prepared from each of the five macaroni samples. They were scored twice by the panel. The average scores are listed in Table 5.

The scores indicate that the addition of highly seasoned foods, such as cheese, or tomato, onion, and bacon, successfully masked the changes in flavor, odor, color, and texture produced by adding yeast to the macaroni. Macaroni and cheese was entirely acceptable to the majority of judges with as much as 4 per cent yeast, while tomato, onion, and bacon disguised a yeast content of even 7 per cent.

TABLE 2

Summary of preferences indicated for yellow corn bread containing different amounts of yeast

CLASS	NUMBER OF STUDENTS	NUMBER OF RATINGS							
		No yeast		1% yeast		2% yeast		3% yeast	
		Acceptable	Not acceptable	Acceptable	Not acceptable	Acceptable	Not acceptable	Acceptable	Not acceptable
1	14	6	2	1	4	3	2	4	7
2	21	12	2	7	3	2	9	1	12
3	21	6	7	0	12	6	6	11	3
4	13	5	3	8	1	1	3	0	8
5	13	8	2	4	5	3	5	0	10
6	17	7	3	8	2	5	2	1	18
7	18	13	2	8	1	0	13	0	10
Total..	117*	57	21	36	28	20	40	17	68

* Number of choices exceeded the number of students, as they were allowed to indicate more than one product which they liked or disliked.

TABLE 3

*Average scores for white and yellow corn meal mush and corn bread containing different amounts of yeast**

TYPE OF CORN MEAL	YEAST	RATING FOR COLOR	RATING FOR FLAVOR	RATING FOR ODOR	RATING FOR TEXTURE
Corn Meal Mush					
	%				
Yellow**	0	5.3	4.3	5.4	5.5
	1	5.2	3.9	5.3	5.0
	2	5.1	4.0	5.2	5.3
	3	5.1	3.2	4.9	5.0
White	0	4.2	3.4	4.1	4.6
	1	4.2	3.6	4.5	3.8
	2	3.8	2.8	4.2	3.8
	3	4.1	2.8	4.0	4.4
Corn Bread					
White	0	4.0	3.9	4.7	4.2
	1	4.4	4.0	4.7	4.1
	2	4.4	3.6	5.4	4.2
	3	4.6	3.2	4.6	3.9

* Maximum possible score = 7.

** A second series of samples was prepared for this scoring; therefore, scores are slightly different from those reported for corn meal mush made from yellow corn meal in Table 1.

SUMMARY

The changes in acceptability caused by the addition of varying amounts of dry primary yeast to corn meal and to macaroni products were investigated. Yellow and white corn meal, with 0, 1, 2, and 3 per cent added yeast, were tested in corn meal mush, corn dodgers, and corn bread. Macaroni with 0, 2½, 3, 4, and 7 per cent yeast added was tested as boiled macaroni, macaroni and cheese, and macaroni with tomato, onion, and bacon.

The palatability of the yellow corn meal products decreased as the concentration of yeast increased. This trend was also exhibited in the white corn meal products, but was not as clearly defined. The concensus of judges' opinion was that 1 per cent of yeast could be added to corn meal without pronounced change in acceptability, but that more than that could be detected.

The scores for boiled macaroni decreased markedly with the addition of yeast. Even 2½ per cent yeast was readily detected, although there was little difference between 2½ and 3 per cent yeast concentrations. When the macaroni was prepared with additional foods, such as cheese, or tomato, onion, and bacon, the macaroni could contain 4 per cent yeast without decreasing the palatability appreciably. The judges' decision was that boiled macaroni was not a good carrier for yeast, but that macaroni prepared with foods containing other pronounced flavors could carry 4 per cent yeast.

TABLE 4

*Average scores for boiled macaroni containing different amounts of yeast**

YEAST	RATING FOR COLOR	RATING FOR ODOR	RATING FOR FLAVOR	RATING FOR TEXTURE
%				
0	6.2	6.1	5.8	5.1
2½	4.6	5.1	4.7	4.7
3	4.6	4.3	5.0	4.8
4	3.6	3.7	4.3	4.1
7	3.2	3.2	3.6	4.0

* Maximum possible score = 7.

TABLE 5

*Average scores for recipes calling for macaroni and other foods with high flavors, when yeast supplements had been added to the macaroni**

YEAST	RATING FOR COLOR	RATING FOR ODOR	RATING FOR FLAVOR	RATING FOR TEXTURE
Macaroni and Cheese				
%				
0	5.7	5.5	5.0	5.6
2½	6.0	5.6	5.8	5.6
3	5.9	5.7	5.4	5.6
4	5.6	5.5	5.2	5.5
7	4.7	4.7	4.5	5.2
Macaroni with Tomato, Onion, and Bacon				
0	6.2	5.9	5.7	5.7
2½	6.0	5.9	5.6	5.8
3	5.9	5.9	5.6	5.8
4	5.9	5.7	5.5	5.7
7	5.7	5.6	5.4	5.7

* Maximum possible score = 7.

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A survey made at Cornell University by Professor M. P. Rasmussen has shown that oranges, grapefruit, apples, peaches, and bananas account for 75 per cent of all fruit sales.

Corn Meal and Macaroni Products Containing Dry Primary Yeast

II. Nutritional Studies[1]

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BECAUSE many national groups use refined cereals, there is considerable interest in the problem of improving the nutritive value of cereal products. The diets of people in the low income groups of all nations are derived largely from cereals, and if these foods could be improved nutritionally, a fair percentage of the population would be benefited. It has been demonstrated that yeast is an excellent source of the B vitamins and also of high-quality protein (1–6), but yeast has a distinctive flavor. Hence the quantity which can be added to cereals without altering the flavor to such an extent that the product is no longer acceptable is important in determining the supplementary value of the yeast.

The acceptability and palatability of two cereal products, corn meal and macaroni, enriched with varying quantities of dry primary yeast has been determined in this laboratory (7). The study reported here was undertaken to test the nutritive value of certain of these products. The white rat was used as the test animal.

EXPERIMENTAL PROCEDURE

The yellow corn meal was prepared for use in animal diets in the same manner as for human consumption, that is, as corn meal mush. One-half cup of the meal was stirred into 2½ cups of boiling water in the upper part of a double boiler. This was placed over boiling water, covered, and cooked 1 hr. with occasional stirring. This mixture was spread in a thin layer on cellophane, dried at room temperature, and ground to a fine meal.

The macaroni was specially prepared by the manufacturer. Various percentages of dry primary yeast were incorporated into the macaroni paste before extrusion and drying. The samples used in the animal feeding trials contained 0, 1,[2] and 3 per cent yeast. Fifty gm. of macaroni were boiled for 15 min. in 2 qt. of salted water. The cooked product was washed with 2 qt. of boiling water, dried at room temperature, and ground to a fine meal.

To determine if the expected beneficial effects were related to the protein or the vitamin content of the

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[2] Macaroni meal prepared by mixing 33.4 gm. of 3 per cent yeast macaroni with 66.6 gm. of plain macaroni.

TABLE 1

Diets containing corn meal (each constituent expressed as percentage by weight)

CONSTITUENTS	DIET 1	DIET 2	DIET 3	DIET 4	DIET 5	DIET 6	DIET 7
	%	%	%	%	%	%	%
Corn meal	93.0						
Corn meal and 1% yeast		93.0					
Corn meal and 3% yeast			93.0				
Corn meal and corn gluten*				93.0			
Corn meal and corn gluten**					93.0		
Corn meal and soybeans*						93.0	
Corn meal and soybeans**							93.0
Fat†	5.0	5.0	5.0	5.0	5.0	5.0	5.0
NaCl	1.0	1.0	1.0	1.0	1.0	1.0	1.0
$CaCO_3$	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Vitamin mix	0.1††	0.0	0.0	0.1††	0.3	0.1††	0.3

* Corn gluten and soybean flour equivalent to protein in 1 per cent yeast.

** Corn gluten and soybean flour equivalent to protein in 3 per cent yeast.

† Ratio of vegetable oil to cod-liver oil—99:1

†† Contained riboflavin, thiamine, and niacin equivalent to that in 1 gm. of yeast.

TABLE 2

Diets containing macaroni (each constituent expressed as percentage by weight)*

CONSTITUENTS	DIET 1	DIET 2	DIET 5	DIET 3	DIET 6	DIET 4	DIET 7
	%	%	%	%	%	%	%
Plain macaroni	93.0			92.9	92.7	91.82	89.65
Macaroni with 1% yeast		93.0					
Macaroni with 3% yeast			93.0				
Fat**	5.0	5.0	5.0	5.0	5.0	5.0	5.0
NaCl	1.0	1.0	1.0	1.0	1.0	1.0	1.0
$CaCO_3$	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Vitamin mix				0.1†	0.3††	0.1†	0.3††
Soybeans‡						1.02	3.05

* All macaroni was cooked in water according to standard cookery practice and then air dried. Percentages given are for dry macaroni. Soybeans were steam cooked and dried as above.

** Ratio of vegetable oil to cod-liver oil—99:1

† Contained riboflavin, thiamine, and niacin equivalent to that in the yeast used to fortify the macaroni at a 1 per cent level.

†† Contained riboflavin, thiamine, and niacin equivalent to that in yeast used to fortify the macaroni at a 3 per cent level.

‡ 1.02 and 3.05 per cent soybeans = to protein in 1 to 3 per cent yeast.

yeast, soybean flour and corn gluten were added to certain diets in amounts equivalent in nitrogen to the added yeast, and crystalline thiamine, riboflavin, and niacin were added to others to equalize the vitamins furnished by yeast.

When yeast, soybean flour, or corn gluten were added to the original corn meal, the addition was made before the cooking process; synthetic vitamin additions were made at the time the diets were mixed. Protein was calculated as N x 6.25. Details of the experimental diets are given in Tables 1 and 2.

Nine or ten weanling male rats (Sprague-Dawley Strain) were placed on each experimental diet. The animals were individually housed, and food and water were fed *ad libitum*. Total food consumption records were kept for the eight-week experimental period and gains in body weight were recorded weekly.

RESULTS

Table 3 and Figures 1 and 2 summarize the pertinent data obtained in this study. Each supplement to the basic diet resulted in some improvement in growth. However, all animals, including those fed the 3 per cent yeast diet, were growing at subnormal rates. From the examination of the growth curves obtained by feeding Diets *3*, *5*, and *7* (Fig. 1), it appeared that the increased rate of growth may be related to the addition of high-quality protein (yeast and heated soybeans) or to some unidentified factor rather than to the addition of riboflavin, thiamine, and niacin. The protein from soybean flour and yeast appeared to be a better supplement than the protein from corn gluten as shown by the biological values of the mixed proteins (Table 3). Three per cent of soybean protein and yeast protein supplemented the corn meal protein to the same degree.

TABLE 3

Food consumption and weight changes of rats fed corn meal diets

DIET	NUMBER OF ANIMALS	AVERAGE WEIGHT		AVERAGE GAIN IN WEIGHT	TOTAL FOOD CONSUMPTION	PROTEIN IN DIET*	PROTEIN CONSUMED IN 8 WEEKS	WEIGHT GAIN PER GRAM OF PROTEIN
		Beginning weight	After 8 weeks					
		gm.	*gm.*	*gm.*	*gm.*	%	*gm.*	
1	9	48.4	48.1	−0.3	197.6	7.44	14.70	−0.02
2	9	49.2	53.9	4.7	213.0	7.31	15.57	+0.30
4	9	48.1	55.5	7.4	229.1	7.62	17.46	+0.42
6	9	49.4	59.8	10.4	230.6	8.20	18.91	+0.55
3	9	47.9	68.0	20.1	290.0	8.22	23.84	+0.84
5	9	47.4	54.5	7.1	203.3	9.28	18.87	+0.38
7	9	51.2	70.9	19.7	269.0	8.47	22.78	+0.86

* N × 6.25.

Seven groups of animals were fed the macaroni diets. The composition of these diets is outlined in Table 2. The mortality of the animals fed the macaroni diets was extremely high. In only two of these groups did all animals survive the eight-week experimental period. These were the animals maintained on diets containing the soybean supplement (Diets *4* and *7*, Fig. 2). It seems evident from an examination of the growth curves in Figure 2 that the survival of the animals was related to some factor other than riboflavin, niacin, and thiamine, since all of the animals on the highest vitamin intake (Diet *6*) were dead by the end of the sixth week. The addition of 3 per cent yeast gave some improvement as indicated by the survival and growth of three out of ten of the animals on Diet *5*. Soybean protein, however, supported better growth at both 1 and 3 per cent enrichment than an equivalent amount of protein nitrogen from yeast.

SUMMARY AND CONCLUSIONS

These data essentially are in agreement with those in the literature (1, 2, 6). The addition of yeast to certain cereals improves the nutritive value of these cereals, but it would appear that the degree of improvement has been overemphasized. It has been reported (6) that rats fed corn meal plus 5 per cent cultured yeast showed a 2704.5 per cent increase in body weight when compared with animals fed the unenriched corn meal. The weight gains of the two groups were 61.7 and 2.2 gm. respectively, in a six-week experimental period. Stock animals fed a mixed grain diet should gain from 200 to 240 gm. during the same growth period. Thus the 2704.5

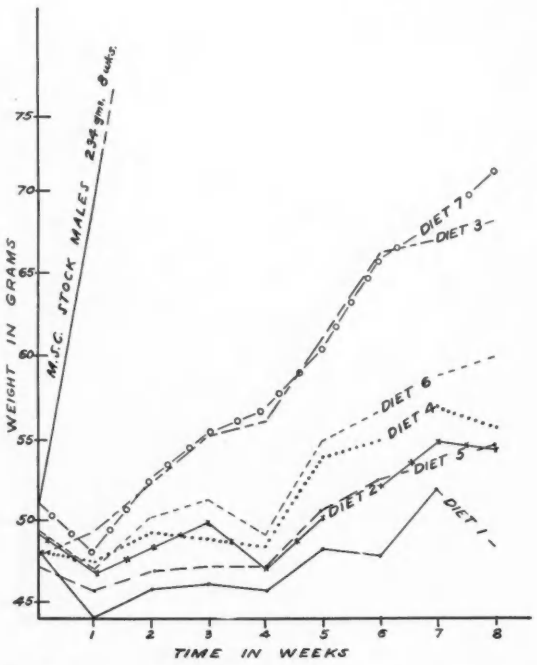

FIG. 1. *Composite growth curves of animals fed corn meal diets.*

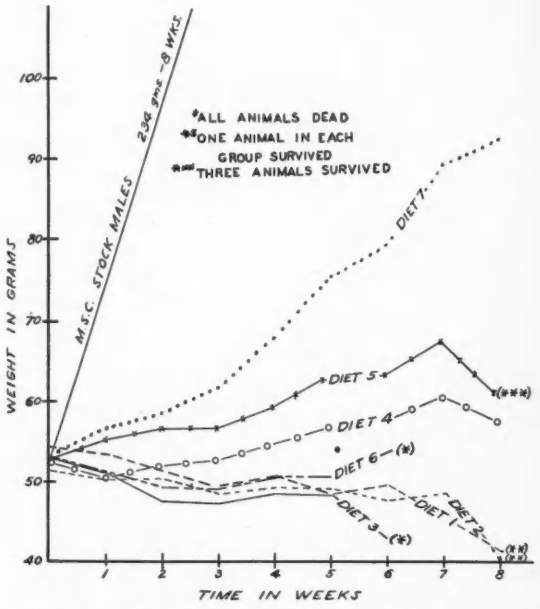

FIG. 2. *Composite growth curves of animals fed macaroni diets.*

per cent increase of the rats fed supplemented corn meal is not as significant as a casual survey of the report would indicate. It must also be recognized that most cereal enriched with 5 per cent yeast would be rejected by the consumer (7) unless the flavor could be masked with other seasonings.

Thus, while the addition of yeast improves the nutritive value of both corn meal and macaroni, the improvement is slight unless more than 3 per cent can be added.

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(7) PAUL, P., FRUEH, M., AND OHLSON, M. A.: Corn meal and macaroni products containing dry primary yeast. I. Palatability and acceptability. J. Am. Dietet. A. 24: 673, 1948.

Goat's Milk

Both cow's milk and goat's milk are favorably regarded as human foods because they contribute essential nutrients. Comparative composition tables show some differences, chiefly quantitative, in individual components.

A large number of therapeutic claims have been made for goat's milk, but available confirmatory evidence is meager. Common practice is the use of goat's milk by persons who cannot tolerate cow's milk because of allergies or other reasons.

There is apparently no great demand for fresh goat's milk as evidenced by the small size of the goat milk industry in this country. Goat's milk is porduced in appreciable quantities only in a few limited areas in the United States, one of which is in Colorado. It can be satisfactorily processed in tin either with or without removal of some of the water by evaporation. With the addition of vitamin D, evaporated goat's milk is eligible for acceptance by the Council on Foods and Nutrition of the American Medical Association—*From Queries and Minor Notes, J.A.M.A. 137: 117 (April 24), 1948.*

Editorial

CLINIC TRIPS PLANNED FOR BOSTON MEETING

In Boston are found some of the best medical facilities, including food and many special clinics, in the United States. In fact, Boston boasts the first food clinic, established at The Boston Dispensary in 1918. Dietitians attending the 31st Annual Meeting of the American Dietetic Association to be held October 18 through 22 in Boston will be given an opportunity to learn how these clinics function. Through the work of the Clinic Trips Committee, under the chairmanship of Vivian Wecker, Director. Food Clinic, Beth Israel Hospital, arrangements have been made for dietitians to visit a number of these food and other special clinics from Monday through Saturday of convention week. A schedule of these trips is given below. Staff members at the clinics will explain the methods and show material used in the treatment of patients, the teaching of students, and in health education. Many of the outstanding doctors of Boston, aware of the role of dietetics in the treatment of disease, will welcome members of our profession to their medical rounds, at which time they will present cases of interest to us. These ward rounds will be offered at Boston City Hospital, Beth Israel Hospital, Massachusetts General Hospital, and Pratt Diagnostic Hospital.

Visits to special clinics have also been arranged by the Committee. On Monday, October 18, and on Saturday, October 23, Dr. Elliott P. Joslin and his staff will conduct a special diabetic clinic at New England Deaconess Hospital. Another special clinic has been planned at Peter Bent Brigham Hospital for Tuesday, October 19, when Dr. Thorn will present several cases who have special dietary and nutritional problems. Dr. Fredrick J. Stare, Professor of Nutrition, Harvard University, School of Public Health, and members of the dietary and social service departments of Peter Bent Brigham will also participate.

For those who are unable to take advantage of these trips to clinics and hospitals a special exhibit of a model food clinic will be set up in Mechanics Hall. Clare Forbes of The Boston Dispensary, and her committee have arranged a display to show the various phases of food clinic work, the physical setup of the clinics, the interrelationship of the food clinic to the medical clinics and social service department, and the health education program.

Since attendance for all clinic trips and ward rounds is limited, dietitians wishing to take advantage of these opportunities are urged to sign up at the Trips Booth early for these special features of the convention.

ADVANCE CONVENTION PROGRAM NOTES

The tentative program for the 31st Annual Meeting of the Association will be published in the September issue of the JOURNAL.

Among the prominent speakers on nutrition and diet therapy will be Dr. Elliott P. Joslin, Dr. Charles G. King, Dr. William B. Castle, Dr. Fredrick J. Stare, Dr. Harold Stuart, Dr. Clement Smith, Dr. George W. Thorn, Dr. Alexander Marble, Dr. Priscilla White, Dr. Frank N. Allan, Dr. George V. Mann, and Dr. David Ayman. Some of the outstanding speakers on community nutrition and group dynamics will be Dr. Margaret Mead, Dr. Mary Spencer and Ethel Walsh. Administrative topics such as layouts, management, and food service will be discussed by Mrs. Mary H. Riste, William A. Riley, Hazel Fullriede, and many others.

On October 19, at the New England States Luncheon welcoming the members to Boston, Charles S. Tapley, prominent lecturer and writer, will speak on "Our New England Heritage."

On page 681 of this issue is a map of Boston showing points of interest. A list of hotels appeared in the April issue of the JOURNAL, page 316. It is suggested that hotel reservations be made early and that whenever possible members share rooms.

REPORT ON REORGANIZATION AND CONSTITUTION

The elected committee of the House of Delegates (Elizabeth Perry, Chairman; Helen Gillum, and Helen S. Mitchell) has made recommendations for reorganizing the American Dietetic Association. The purpose of the reorganization was three-fold: (a) To work out an expansion of activities for the House of Delegates, (b) To make the government of the Association more democratic, and (c) To increase the efficiency of organization management.

The recommendations of this committee have been studied by the Review Committee made up of eleven persons—the above mentioned three, and eight others appointed by the President, six of whom are members of the House of Delegates. (See page 502 of the June issue of this JOURNAL.) The final decisions of this group are being incor-

porated in a new Constitution which will be sent to all members when finished.

Some major changes have been made as follows:

(a) It has been recommended by Mr. Edward P. Morse of Sonnenschein, Berkson, Lautmann, Levinson, and Morse, the Association's attorney, that certain parts of the present By-laws should be in the Constitution where they can be changed only by action of the entire membership, thus protecting the rights of the members. To this end, the following have been included in the Constitution:
   (1) The plan of organization for the House of Delegates
   (2) A provision by which the House of Delegates can establish its own By-laws, all or any part of which can be revised as needed by the House to govern itself within the scope of its expanded activities
   (3) Duties of the officers
   (4) Duties of boards and standing committees
   (5) Rights of members
   (6) Meetings of the Association and House of Delegates
   (7) Fiscal year
   (8) Dues

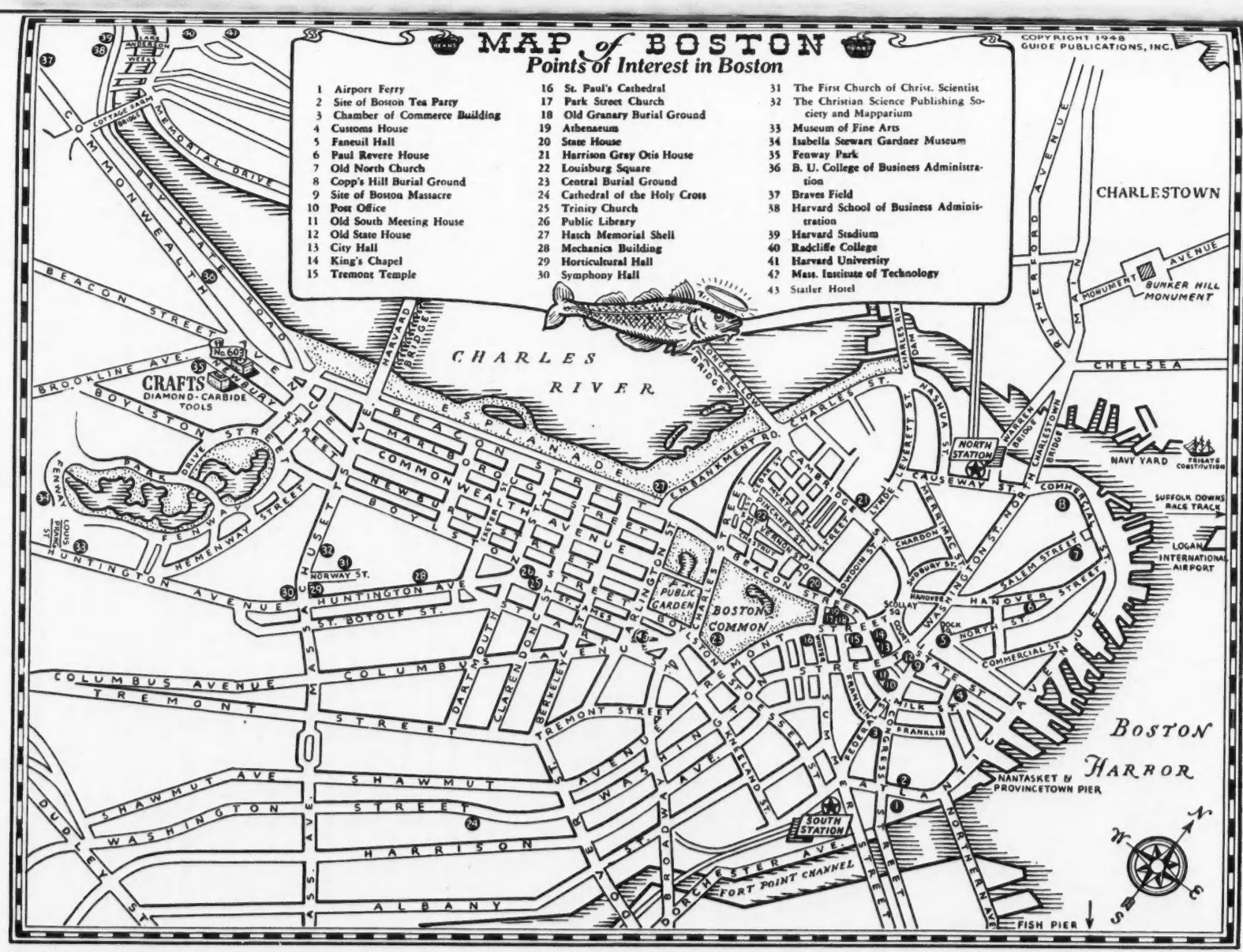
(b) Changes in the organization of the Association have been recommended. An Executive Board made up of the five elected officers will be responsible for the administration of the Association. It would seem to be more democratic to vest the power of decisions (administrative and financial) in the officers who have been chosen by the members, than in a Board consisting of those officers plus four appointees of the President, as found under present organization. Another advantage of having the five elected officers administer the affairs of the Association is that, being a smaller group, they can meet as often as necessary.

There will be, however, another Board, called the Board of Directors, which will be made up of the officers and section chairmen. The responsibility of this Board will be to meet semi-annually to plan and develop the activities of the Association.

(c) The House of Delegates has been given greater responsibility in carrying out the activities of the Association.
   (1) The constituency of the House of Delegates is being changed. Some states have found it difficult to select the best persons for delegates because of inability to finance the trip to convention. If they send fewer delegates, more financial assistance can be given, and greater care can be exercised to select better informed representatives to the House of Delegates. In addition, a fewer number of delegates can be better instructed as to the opinions and wishes of the state association.

   Also it is believed that a smaller House of Delegates will be able to function more efficiently. The proposed plan of representation is to have one delegate for each state association plus one delegate for each 100 members over fifty.
   (2) The House of Delegates will be made up of the delegates from the state associations, six delegates-at-large, the officers, and the section chairmen. The delegates-at-large will be elected by the membership, two each year for a term of three years. The purpose of this addition is to give stability to the House, the Council, and the Finance Committee (see below).
   (3) The House of Delegates will have a coordinating body—the Council. This will consist of seven members—the chairman, four delegates elected by the House, and the two senior delegates-at-large.
   (4) The Chairman of the House of Delegates will be the Vice-president of the Association. She will also be Chairman of the Council. The reason for this change is that the House of Delegates and its Council will have voting representation on the Executive Board and the Board of Directors. It is democratic because the Vice-president is elected by the entire membership.
   (5) Much of the work of the sections will be carried on through the House of Delegates under a Section Vice-chairman appointed from the members of the House of Delegates, by the Chairman of the House, subject to the approval of the Council.
   (6) Some of the present standing committees have been made a part of the House of Delegates.
   (7) The two senior delegates-at-large will serve on the Council and will represent the Council on the Finance Committee.

Dues, life memberships, boards, committees, elections, and other suggested changes, together with a chart showing the proposed organization, will be presented in the September issue of the JOURNAL. Watch for them.—*Anna Boller Beach, Chairman, Review Committee.*


MAP of BOSTON
Points of Interest in Boston
1 Airport Ferry
2 Site of Boston Tea Party
3 Chamber of Commerce Building
4 Customs House
5 Faneuil Hall
6 Paul Revere House
7 Old North Church
8 Copp's Hill Burial Ground
9 Site of Boston Massacre
10 Post Office
11 Old South Meeting House
12 Old State House
13 City Hall
14 King's Chapel
15 Tremont Temple
16 St. Paul's Cathedral
17 Park Street Church
18 Old Granary Burial Ground
19 Athenaeum
20 State House
21 Harrison Gray Otis House
22 Louisburg Square
23 Central Burial Ground
24 Cathedral of the Holy Cross
25 Trinity Church
26 Public Library
27 Hatch Memorial Shell
28 Mechanics Building
29 Horticultural Hall
30 Symphony Hall
31 The First Church of Christ, Scientist
32 The Christian Science Publishing Society and Mapparium
33 Museum of Fine Arts
34 Isabella Stewart Gardner Museum
35 Fenway Park
36 B. U. College of Business Administration
37 Braves Field
38 Harvard School of Business Administration
39 Harvard Stadium
40 Radcliffe College
41 Harvard University
42 Mass. Institute of Technology
43 Statler Hotel
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CAUSEWAY STREET
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HANOVER STREET
SALEM STREET
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HARVARD BRIDGE
CHARLES STREET
BEACON ESPLANADE
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FENWAY
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HEMENWAY STREET
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WATER ST.
MILK ST.
FRANKLIN
FEDERAL ST.
PURCHASE ST.
CONGRESS ST.
SUMMER ST.
ESSEX ST.
KNEELAND ST.
BOYLSTON ST.
BEACON ST.
MARLBOROUGH ST.
NEWBURY ST.
COMMONWEALTH AVE.
BOWDOIN ST.
CHARDON ST.
SUDBURY ST.
HANOVER ST.
NORTH ST.
ROCK OF AGES
SCOLLAY SQ.
CHAMBERS ST.
PINCKNEY ST.
REVERE ST.
LYNDE ST.
EVERETT ST.
NASHUA ST.
MONUMENT AVENUE
BUNKER HILL AVENUE
LOUISBURG SQUARE
LOUIS PRANG ST.
COTTAGE FARM BRIDGE
LAKE AMBASSADOR WEEKS

Current Comment

THE INDUSTRIAL DIETITIAN—AMBASSADOR OF GOODWILL[1]

ISABELLE N. PETERSON

Head, Cafeteria Division, Swift and Company, Chicago

During the war years, the fields for dietitians broadened, and the trend toward employing dietitians in business and industry gained impetus. Business presents a challenge to the dietitian because *first, she must sell herself, and second, she must sell her profession.*

The successful business or industrial organization has two functions to fulfill—economic and social. First, it must manufacture and distribute a product or products at a profit. Second, it must keep individuals or groups working effectively together. Good employee relations within an organization are, therefore, a most important contributing factor to a sound and successful business. The industrial dietitian can contribute to building her company's greatest asset—good employee relations. She can achieve this success by her ability to get along well with others, knowledge of her work, and willingness to work hard.

Since the founding of Swift and Company, the importance of lunchroom facilities has been recognized as a very important factor in better employee-management relations. It was felt that the provision of a place where employees could eat and the supplying of food which would build and maintain good health would make a more satisfied employee and a more efficient worker. During the war, while the company was giving full support to the national nutrition program, the need to promote better nutrition for its own employees was felt. As a result, the services of a dietitian were employed to carry on the nutrition program.

The company organization is one of centralized operations with decentralized responsibilities. There are approximately forty cafeterias in the United States and six in Canada. The three departments interested in the services to be rendered by the Cafeteria Department are: (a) the General Superintendent's Office, responsible for the supervision and direction of these cafeterias; (b) the Industrial Relations Department, responsible for employee progress and welfare; and (c) the Research Laboratory, responsible for nutrition research. The dietitian reports and is responsible to the Research Laboratory.

Just what, where, when, and how could the dietitian approach the task to be done for such a company with cafeterias not under one roof or in one city, but rather situated from Maine to California and from the Gulf of Mexico into Canada? After much preliminary planning, the first step was to survey the food service and facilities in the forty-six plant cafeterias in this country and Canada, at the same time promoting a nutrition program.

In outlining and developing a program of work, it was recommended that the dietitian plan a group of well balanced menus; collect quantity recipes and quantity recipe books; have meat thermometers and roasting and cooking charts; develop food cost records and store-room inventory cards, and so on. These were part of the necessary tools for the job.

GAINING THE CONFIDENCE OF EMPLOYEES

But before the first trip to the various cafeterias, a statement was made by the head of the Industrial Relations Department to the dietitian that was to keynote her work—"Remember, you are on a goodwill tour." Thus the dietitian's first important job was and still is to sell herself and the importance of her work.

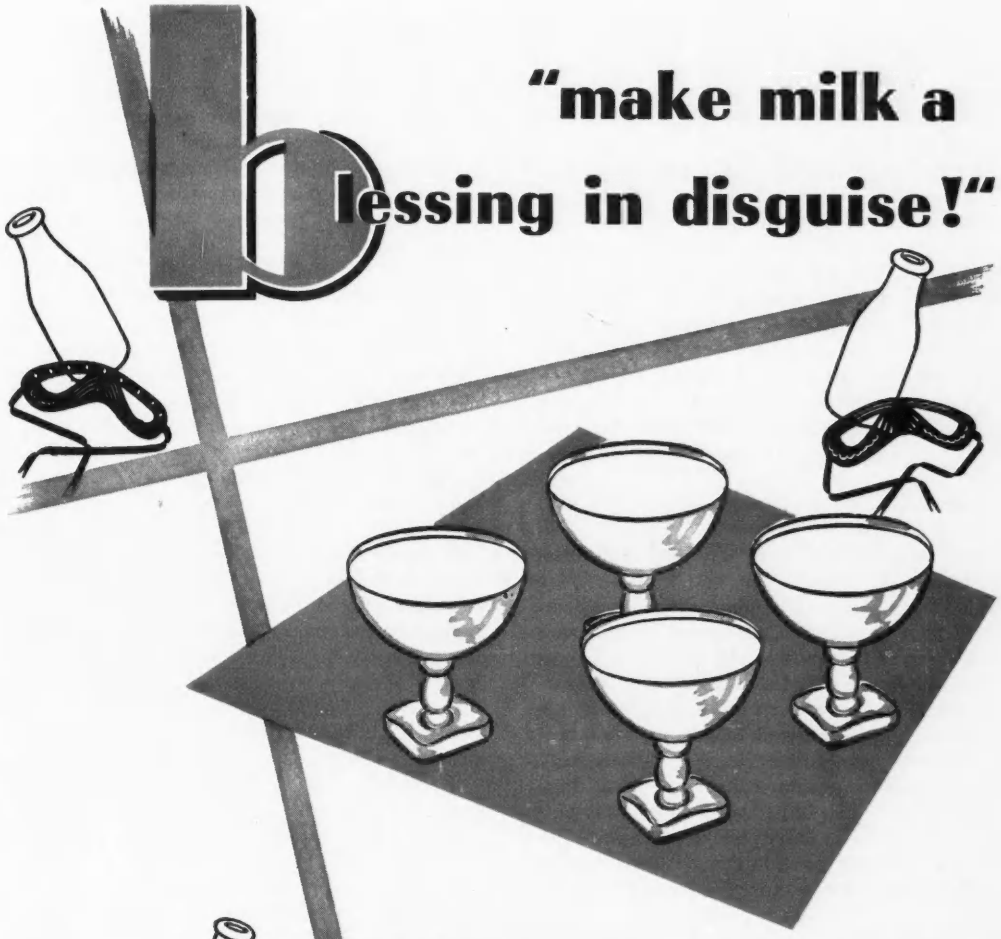
Enumeration of a few experiences will illustrate how the interest in improved cafeteria operations developed in the forty-six plants.

We have cooks and chefs in our cafeterias, some of whom have come up through the ranks of the company. Upon hearing that the consulting dietitian was to visit their cafeteria, some were going to leave; others wanted nothing to do with her, for they knew that she would disrupt the menus and food preparation operations; still others were determined to carry on in the former manner after she had left. Local management warned the dietitian about these attitudes before introducing her to the cafeteria personnel.

This was the stage and the dietitian had the title role. Her reactions were of vital importance to the success of the program. Determined to meet the personnel with the attitude "do unto others as you

[1] Presented at the 30th Annual Meeting of the American Dietetic Association in Philadelphia, on October 16, 1947.

"make milk a blessing in disguise!"



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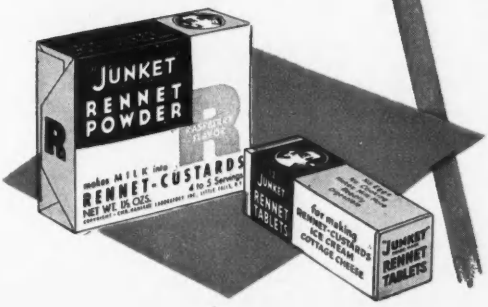

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would want them to do unto you," the dietitian soon learned that such an approach produced good results. Comments of well deserved praise from the dietitan boosted the morale of the lay people and instilled in them a desire to do a better job. Willingness to lend a helping hand in some of their daily tasks gave her a closer contact with the cafeteria employees. At the same time, she also had an opportunity to obtain first-hand information which was valuable in developing an overall program of cafeteria operations. By such consideration for the employees, she showed her friendliness and willingness to work and help them with their problems. Likewise, a visit into the various plant departments offered her an excellent opportunity to learn something about plant operations and to find out what other employees of the company do, at the same time selling herself and her work.

One thing needed for improving the quality of food was adequate equipment. Where could the dietitian fit into this phase of the work? The company has a large Construction Department and a Supervising Engineer's Department which plan and work on layouts for all plant operations. Because she had said the wrong thing at the wrong time, the dietitian was called for a conference with the head of the Construction Department. He wanted to know who the dietitian was that she could tell his department how they were to build the cafeterias. By pointing out the ways and means of obtaining an efficient food preparation and service unit, the dietitian was able to show how she could assist his department. As a result, all new layouts, improved construction plans, and the purchase of new equipment are now reviewed and approved by the dietitian.

INAUGURATING NEW PROJECTS

Standardized recipes. After the dietitian had gained the confidence of the cafeteria personnel and helped to improve their facilities, the staff began to ask her for recipes for various menu items. These were not available in the company, and as this cafeteria program was new, the dietitian wondered if the idea of quantity recipe testing could be promoted. After much thought and planning, she proposed and recommended to the company that this project be set up and administered by a trained home economist with experience in institutional management. The recommendation was accepted, and although there were a few who thought that any woman or man cook could do the job, a trained home economist was employed to work on this project.

Food cost control. It has always been good business to maintain food cost control records, for they offer basic information for the cafeteria supervisor about his or her daily operations. The dietitian found that in most of the cafeterias, the supervisor had little or no knowledge of the cost of food items, and consequently that there were no standardized portions or portion control. Yet, these people were held responsible for the most complete business operation in the company because they took the raw product, processed it, and then merchandised it.

There were monthly departmental statements for all operating departments, which were also used for the cafeterias. Yet, most of the cafeteria supervisors had never seen this statement. Could a simplified cost analysis be set up and utilized by the cafeteria staff? By working with the Accounting Department, a simple chart was developed. It was given a six-month, on-the-job trial and proved satisfactory. It did, however, take a great deal of time, patience, and supervision to gain the interest and cooperation of our cafeteria employees in establishing cost control.

Sanitation. Sanitation is a most vital part of any food manufacturing concern, and we have a technical sanitation program for all plant operations. Not until three years ago, however, were the cafeterias included in this program. The consulting dietitian offered her assistance to this division in pointing out some of the steps to be taken for cafeteria inspection. Now a new and revised check list for these inspections has been developed. The dietitian has encouraged cooperation from the various departments in furthering the interest in this program.

Training. The company has had a training program for foremen and supervisors. In the past several years, this training has developed and spread to almost all departments with the exception of the cafeteria. Very little work has been done with the Training Division on this project. The dietitian's first step in this direction was the preparation of a manual on "Cafeteria Instructions." As our cafeteria organization becomes a little more complete, we hope to have personnel for this work.

Though it has been slow and sometimes very discouraging, some progress has been made since the dietitian joined the company. We are over the "hump," but there is still a big job to be done. The opportunity of developing and organizing a Cafeteria Department has presented itself and this challenge spurs on the dietitian.

INDUSTRIAL FEEDING PROGRAM OF WESTERN UNION TELEGRAPH COMPANY[1]

BESS SPEAS COGHLAN

Restaurant Manager, Western Union Telegraph Company, New York City

Group feeding in the Western Union Telegraph Company began in the late 1870's. At that time the Traffic Department opened dining rooms for its employees who, because of their hours or the loca-

[1] Presented at the 30th Annual Meeting of The American Dietetic Association in Philadelphia, on October 16, 1947.

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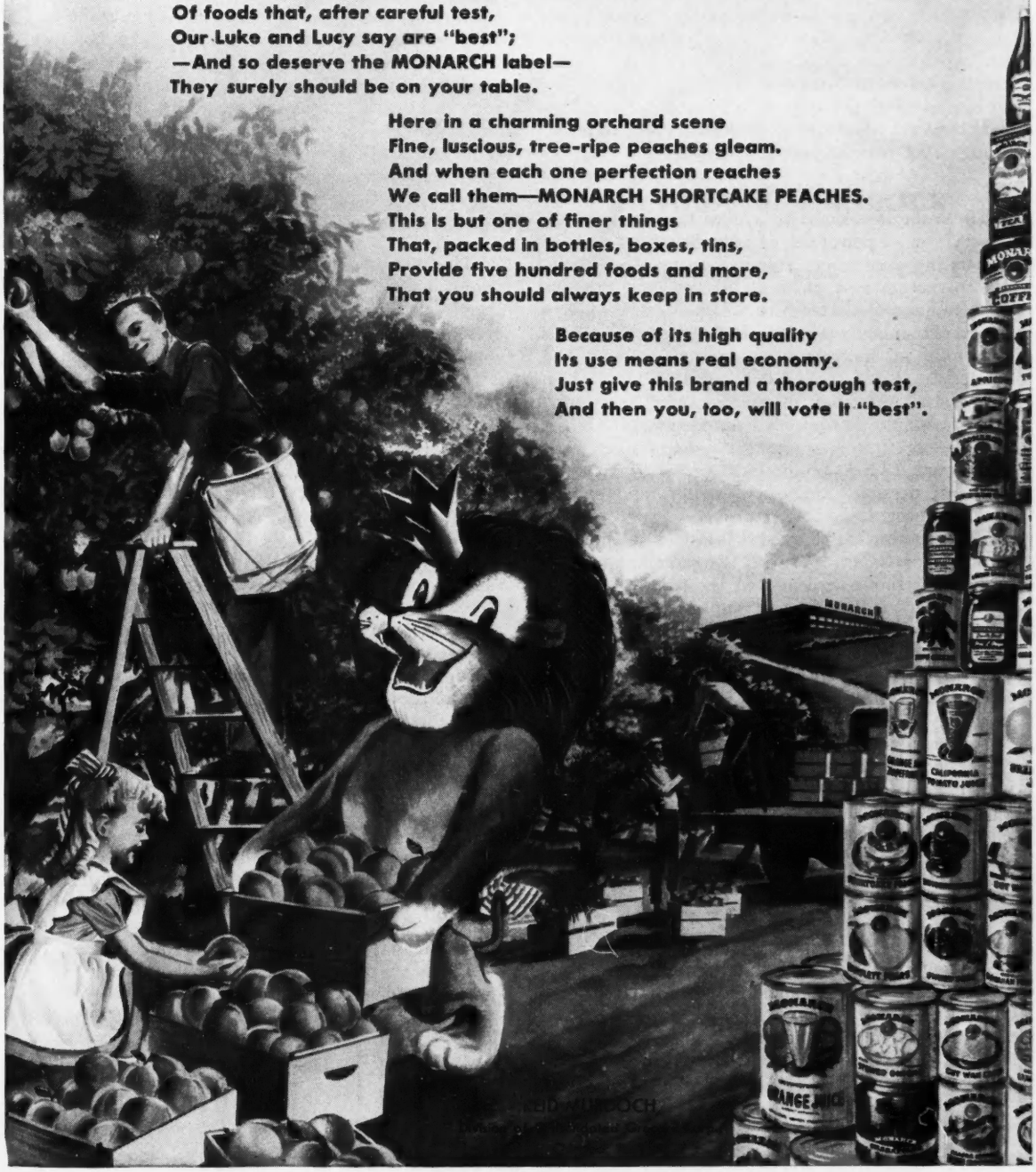


tion of the building in which they worked, did not have access to other restaurants. The first cafeteria opened in July, 1914. In August, 1930, the company moved into its present twenty-four story building, which covers a full city block. The cafeteria occupies 15,568 sq. ft. in this building, and smaller service dining rooms take up 3815 sq. ft. The cafeteria consists of a main floor and a mezzanine. Both are open at noontime, but only the mezzanine is used for breakfast and early and late night service. This area would, of course, need to be larger if all customers were served at one time, instead of around-the-clock. The original plans provided for service for 8000 customers over a 24-hr. period, and this capacity was never quite reached before the war; then the number served rose to almost 9000 per day which taxed our facilities considerably. We are at present serving approximately 7000 persons daily.

PERSONNEL

The restaurant manager's office takes care of the supervision of personnel who handle the details of accounting, budgeting, record keeping, food costs, and perpetual and physical inventories. Payrolls are computed by the Statistical Department, where a record of manhours is kept. Reference to these data is helpful in controlling production costs in the cafeteria.

In actual operation of the cafeteria, about one person is employed for each sixty customers. When vacancies occur, job requirements and hours of work are posted. Then, promotions are made from the ranks, if possible. Seniority, ability, and experience are recognized.

The organization chart and positions in the food service department are much the same as in every large organization, except that the title of "restaurant worker" is used for any employee hired especially to do dishwashing, pot washing, bus work, or cleaning. This title was adopted during one of our early negotiations with the union. Employees with other titles do cleaning work in their various sections.

For employees in new jobs, or for new employees, on-the-job training is conducted, and old employees who have been promoted enjoy a sixty-day probationary period in their new positions. New employees have ninety-days to make good. Posters, too, have been used effectively, but it has not yet been possible to develop other means of visual instruction, because of our 24-hr. operating schedule.

SUPERVISORY PERSONNEL

We find that it is important for the supervisory force to have a good understanding of human relations, if they are to develop a loyalty and team work that will be reflected in employee and customer satisfaction. If proper care is given in the initial selection of personnel, the operation of a satisfactory wage scale, and good working conditions, employee cooperation will result. Employees like to feel themselves a real part of the organization, and management should strive to achieve this feeling. Recently, when on my first round after the installation of a new piece of equipment, various employees who worked with it made it a point to tell me how they liked it and spoke of its improvement over the old equipment. This is the sort of interest and enthusiasm which indicates satisfied employees.

If top management and the union agree on working conditions and sign a contract, it is important that the manager know how to interpret this contract. Job classifications and specifications must be written, and once an employee knows what his duties are and is taught how to perform them, there will be little conflict. We make an effort to settle grievances on a just and equitable basis, and because of this policy, grievances rarely go beyond the manager's desk.

Restaurant Manager

The manager must coordinate the whole operation, delegating responsibility where possible to bring about a smoothly functioning department. Her administrative duties include menu planning, food purchasing, personnel management, job analyses and specifications, merchandising, fixing of policy, and general direction of the organization. Other responsibilities of the restaurant manager include: supervising and food preparation, service, sanitation, dishwashing, and maintenance of equipment; merchandising; time and motion studies; standardization of recipes; and computing yield and cost.

In her capacity as purchasing agent, she must keep abreast of market prices and conditions and know the various factors which influence food markets, such as season, weather, storage holdings, transportation, and abundant foods. Sources of information at her disposal include various governmental agencies, trade and professional associations, daily market reports, reports of various food firms, and talks with salespersons. She visits markets as frequently as time permits, and she discusses standards and requirements with the vendors so that they understand exactly the type of merchandise she wishes to buy. All purchasing is done on a competitive price basis. Small quantities of replacements and miscellaneous items may be purchased directly, but large quantities of these items or capitalized equipment, as specified and recommended by the manager, are obtained on requisition.

Menus are planned so that there is a change of the principle items for each meal period, while at the same time allowing smooth production operations. Thus, the manager in menu planning must take into consideration the facilities available, such as oven

"LIBBEY HEAT-TREATED...

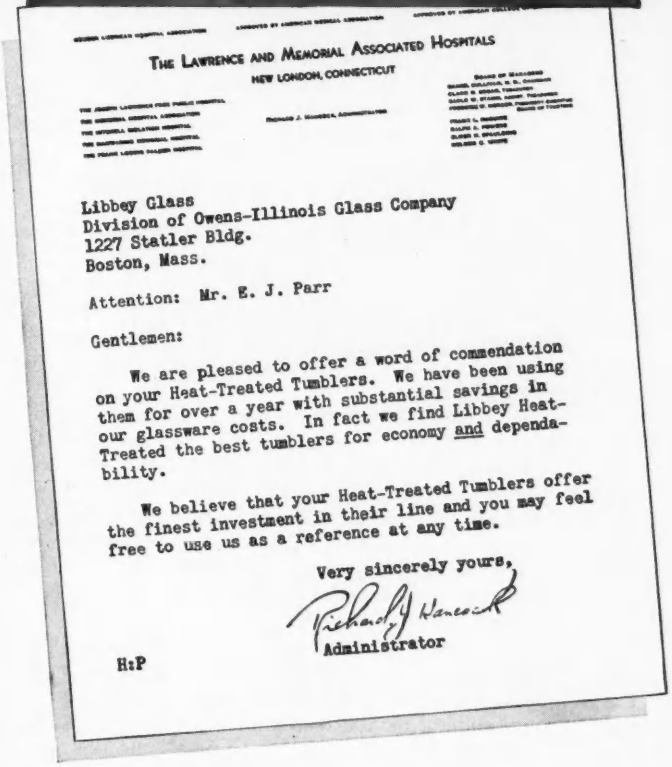
the best tumblers for economy and dependability!"

says:

RICHARD J. HANCOCK

Administrator

THE LAWRENCE and MEMORIAL ASSOCIATED HOSPITALS



THE LAWRENCE AND MEMORIAL ASSOCIATED HOSPITALS
NEW LONDON, CONNECTICUT

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Division of Owens-Illinois Glass Company
1227 Statler Bldg.
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We believe that your Heat-Treated Tumblers offer the finest investment in their line and you may feel free to use us as a reference at any time.

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Richard J. Hancock
Administrator

H:P

SERVICEABILITY, convenience and economy are but a few of the prime requisites in fulfilling hospital supply needs. When it comes to glassware for bedside serving and for dining-room use, Libbey Heat-Treated Tumblers give you all three!

Establishments—large and small—all over the country—hospitals, restaurants, hotels, clubs, fountains and bars . . . are changing over to Libbey Heat-Treated Tumblers . . . are profiting from four-way savings like these:

1. Reduction in breakage!
2. Less money invested in glassware!
3. Fewer handling hazards!
4. Saving on storage space!

Ask your jobber to show you samples of Libbey Heat-Treated Tumblers or write to us for information.

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A NEW GLASS IF THE SAFEDGE EVER CHIPS

LIBBEY GLASS

Libbey HEAT-TREATED

Libbey Glass Company, Toledo 1, Ohio

space, top-of-stove areas, fryers, and so on, as well as employee capacity. Color, texture, and counter arrangements are also kept in mind, for they affect the speed of service, as well as customer selection and consequent nutrition. Studies have shown that customers make better selections if the line keeps moving in an even, orderly sort of way. We have found that nine customers a minute pass down our cafeteria line during the rush hour to the point where the checks are issued. If trays are checked and change made in one operation, the number is decreased to six per minute.

Assistant Manager

The assistant manager is responsible for work schedules of all service employees. Such schedules must be arranged to give maximum production for control of manhours, and if the scheduling is not properly done, the percentage for labor cost rapidly increases. Due to our "around-the-clock" operation, the task of scheduling is particularly complicated.

The assistant manager is also responsible for moneys and, together with the food supervisor, for service, sanitation, and safety. Both attended the course on sanitation given last year by the Department of Health of New York City in cooperation with the Greater New York Dietetic Association, and hold certificates from this course. Since sanitation is one of the greatest responsibilities of the food production person toward the community, the sanitation program is one of the most important phases of our in-plant feeding. Our supervisors must be informed on the federal, state, and city laws governing sanitation, food, hours of labor, working conditions, including industrial safety.

Safety is also stressed in our company, and the restaurant manager is a member of the Metropolitan Safety and Health Committee, which has a representative from each department in the area. Monthly meetings are held, at which reports from committees of various areas are exchanged. A subcommittee is appointed monthly for inspection of the various departments. Items checked and inspected include: ventilation—adequacy and maintenance; tripping and slipping hazards; orderliness of work areas; adequacy of lighting; conditions of tools and equipment; and fire hazards and fire fighting equipment.

Food Supervisor

The food supervisor, who is a dietitian, is responsible for all food production, standardization of recipes and portions, storage, and cooking temperatures. Her duties include: receiving perishable food stuffs and checking for quality and quantity against daily order sheets; requisitioning all staples from the storeroom; consulting with the manager on menu planning; taking daily inventories of perishables; seeing that proper amounts of foods are prepared at frequent intervals so as to retain their nutritive value and appearance; and seeing that "hot foods are served hot and cold foods cold." Since a number of factors affect sales, records are kept of the amounts prepared each day, weather conditions, and number of customers, as well as the various items served. Such information helps control waste. All kitchen and bake shop personnel report to her, and she is responsible for their work schedules and assignments.

FOOD COSTS

Because the cafeteria is conducted for employees, prices are kept as low as possible. A recent study showed that the average check depends on the time of day. Averages for the different periods were:

Late night	$.24
Breakfast	.16
Lunch, mezzanine	.48
Lunch, main floor	.32
Early night	.36
Overall average	.31

The above averages include snacks, except for the lunch served on the mezzanine. Between-meal snacks have always been included as part of the Western Union feeding program. Records are kept of food costs and portion control; daily quotation and order sheets; cash reports; and daily, weekly, and monthly statements. By application of the knowledge gained from these records and from current market conditions, it is possible to control food costs and percentages.

Prices are computed on percentage-of-cost basis, and they are not increased unless there is a definite trend upward in the food index or wages. Wages have been a large factor in the rise in prices charged in our cafeterias.

At a panel discussion on the "Management of Industrial Feeding" held at the School of Public Health, Columbia University, in March, 1947, it was agreed that a food cost of 50 to 52 per cent in the New York area would leave a sufficient margin for labor and operating expenses. Of course, if the wage scale or operating expenses were to increase or decrease, these changes would be reflected in the mark-up factor.

A careful study was made of the wholesale price index of food, as published by the U. S. Department of Labor, and of the food and labor percentages for our cafeteria for fourteen months. The correlation coefficient formula was used to determine the relationship between the wholesale price index of food and the food cost percentage from month to month. It was found that there was a small negative correlation—that is, the correlation coefficient was minus four tenths (−.4), indicating that despite the rising wholesale prices, the food percentage was controlled. We believe that if all other factors, such as changing

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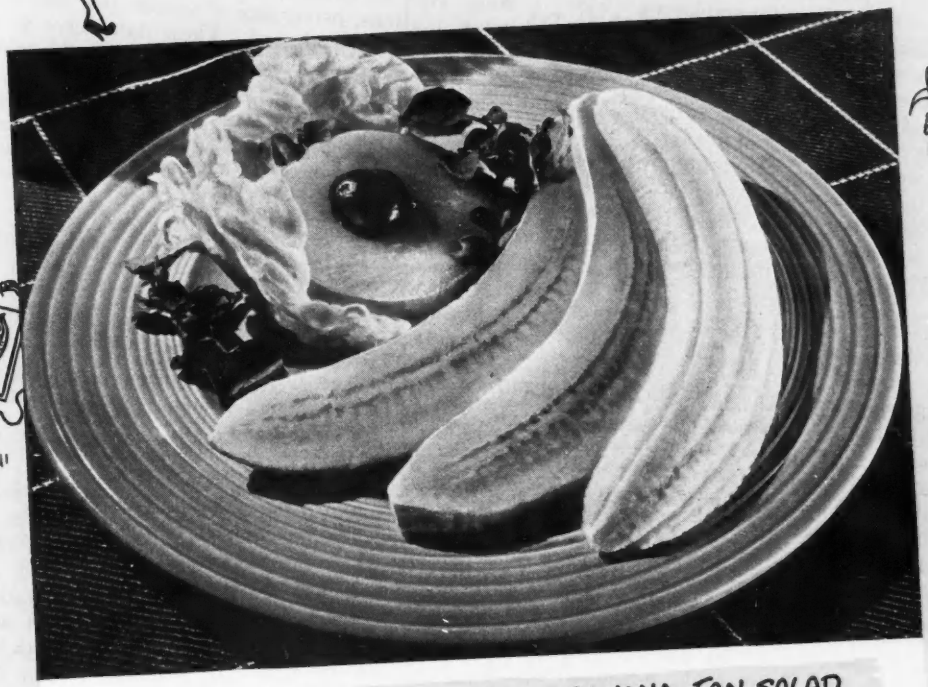
A pleasant tray surprise
PEACH BANANA FAN SALAD



Nature seals bananas in a germ-proof package

Pretty as a picture

Look what you get—
Fruit sugars
Vitamins
Minerals

For Salads—choose bananas flecked with brown

How to make PEACH BANANA FAN SALAD

(1 Large individual serving)

½ peach
Lettuce
Berry or cherry
1 ripe banana
Watercress or parsley

Place peach half into a crisp lettuce leaf and arrange at back of salad plate. Garnish with berry. Peel and cut banana lengthwise into 3 slices and place across front of salad plate. Spread slices open to resemble a fan. Garnish with crisp watercress or parsley.

Serve with a sweet or tart dressing.

USE FULLY RIPE BANANAS...YELLOW PEEL FLECKED WITH BROWN

Home Economics Dept., UNITED FRUIT CO., Pier 3, N. R., New York, N.Y.

For a cool, nutritious drink — Banana Milk shake

Ideal salad for your lunch-room and cafeteria, too

labor costs, volume of business, and cafeteria prices, were held constant, there would probably be a positive correlation. A further study of this problem is planned, using a partial correlation formula which can show the correlation between two factors, assuming that all others are held constant.

FOOD SELECTION OF WESTERN UNION EMPLOYEES

In 1942, the food supervisor and restaurant manager planned a nutrition course for employees. The medical director approved the course and cooperated, as did the Women's Volunteer Service. This course extended over a period of several weeks and included talks by food and nutrition experts in New York City. Posters were developed and displayed, and a number of films were shown. Mimeographed material (written in the department) was distributed, as were many leaflets from trade and governmental sources. As a result of this course, a definite improvement in food selection in the cafeteria was noted.

Later, in 1944–45, a special survey of employees' food selections was made, and the results have been published (1). A high percentage of employees made fair and good choices, which was attributed to the menu. At that time, the meal trays of 1600 persons were examined. Estimates were made concerning the proportion of good, fair, and poor choices, with a probability of 95 per cent that the figures were correct to within 2½ per cent.

In September, 1947, another survey was conducted for seven days during the lunch hour (11:30 a.m.–1:00 p.m.), using the same standards as before. The meal trays of 294 persons were observed. The probability was 95 per cent that the figures were correct to within less than 5 per cent. Despite this small difference in percentage range, the two studies were comparable because a 5 per cent difference is not significant. A comparison of the selections in 1945 and 1947 are shown in Table 1.

TABLE 1

Comparison of meals selected by Western Union employees in 1945 and 1947

ADEQUACY OF MEAL	1947	1945
	%	%
Good	20	13
Fair	56	62
Poor	23	25

When the figures for the survey last fall are compared with those of 1945, they indicate that food selection at Western Union has improved. Although the proportion of individuals selecting poor meals remained approximately the same, the percentages show that some employees have graduated from the "fair" to the "good" class in food selection.

COOPERATION WITH STATE AGENCIES

The dietitian in an industrial cafeteria can also contribute directly and indirectly to community life through a number of channels outside of the actual feeding operations she controls. For instance, the Western Union cafeteria organization each year cooperates with the New York State Department of Labor. Representatives from the Division of Industrial Relations, Women in Industry, and Minimum Wage visit us annually to obtain information on prices, portions, percentage of women fed, and the type of luncheon selected. These data serve as a comparison in compiling imformation on the minimum cost for adequate lunches for a five-day working week, when the lunch is purchased, and these statistics are included in the State Department of Labor's publication, *Cost of Living for Women Workers.*

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(1) CAROL, R. E.: Study of food selection at the Western Union Cafeteria, New York. J. Am. Dietet. A. 22: 408, 1946.

RELATION OF METHOD TO THE TIME REQUIRED FOR PREPARING VEGETABLES

FRANCES WELCH, REUELINE HIBLER, BILLIE SIMS, AND JEANETTE WRIGHT

School of Home Economics, North Texas State College, Denton

In industry, time and motion studies have shown that it is important to make every motion count, and that there are certain basic principles which should be followed if efficient operation is to be achieved. For example: always use the best tool for the task; sit down to work whenever possible; keep all of the materials needed within easy reach; make both hands work; and make one task out of two or more if possible. Goble (1) found that any unnecessary step or steps should be omitted.

In recent years, dietitians have been more and more interested in better organization and increased efficiency in kitchens, including the better organization of working time. In order to accomplish this, according to the Home Management Bulletin of the University of Wyoming (2), the dietitian must know, among other things, the approximate time it should take an employee to prepare certain vegetables for cooking.

PROCEDURE

The purpose of this study was to investigate the effect of different methods on the time involved in preparing fourteen different vegetables for cooking. Accepted tools, equipment, and techniques were used throughout the study. The vegetables used were: string beans, beets, broccoli, cabbage, carrots, celery, corn, eggplant, mustard greens, okra, potatoes, spinach, squash, and turnips.

Here's Why Hotpoint Kitchens Were Voted America's Finest

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Here Are The 12 Points On Which Grand Awards Were Based!

Entries in the Food Service Contest sponsored by *Institutions* Magazine were judged upon the basis of the following standards:

1. Selection of equipment for functional application.
2. Placement of equipment.
3. Sanitation in food preparation and serving.
4. Employee morale.
5. Accident elimination.
6. Speed in preparation of food.
7. Efficiency in preparation of food.
8. Saving in work hours.
9. Ease of maintenance of equipment.
10. Serving facilities and equipment.
11. Ingenuity in meeting special problems.
12. Psychological aspects in customer relations.

Judges in the above contest were selected from recognized leaders in the hotel, hospital, and architectural fields; also the National Restaurant Association and Food Service Equipment Industry.

In America's leading Food Service Contest, the efficiency, speed and economy of Hotpoint all-electric kitchens brought top honors of Grand Awards to the Illinois Bell Telephone Co., Chicago and Clark's Lunch Rooms Inc., South Bend, Indiana.

By ranking first in competition with kitchens of the country's finest cafeterias and restaurants, Hotpoint all-electric kitchens have again demonstrated their capacity to prepare better, more nutritious meals, to permit efficient, space-saving layout and to repay their cost many times over.

Discover for yourself how Hotpoint Electric Cooking Equipment brings you these 7 big savings every day of the week:

- **Saves Food Flavors**—conserves maximum of natural juices, gives uniform results.
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- **Cuts Labor Costs**—Saves hours for cook, saves on cleaning and scouring, too.
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- **Saves Kitchen Space** — Compact, easy to install in most efficient arrangement without regard to chimneys.
- **More Efficient** — Midwestern university tests show that Hotpoint equipment is 2.68 times more efficient than flame type.

In the employees' Cafeteria of Illinois Bell Telephone Company, Hotpoint cooking and baking equipment serves 12,000 customers during a 24-hour day. As many as 1500 customers an hour are cared for at busy periods.

Clark's popular South Bend establishment has set an impressive record in serving 3000 meals a day in its 195-seat restaurant. Hotpoint equipment not only enables Clark's to serve far more people, but to register substantial savings as well.

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This study was made from June to October, 1947, in one of the kitchens of a college residence hall cafeteria at North Texas State College.

All vegetables were used as purchased without further selection or sorting, so that the results would be representative of the lot purchased. The vegetables were purchased in 50-lb. lots and were weighed and checked on Fairbanks scales. No products were washed before weighing. Records were kept of the size and condition of the produce. Any unusual factors or conditions that might influence the preparation time were recorded.

After the produce had been weighed and the equipment set in place, the time was recorded, and it was again noted when the job was finished; thus the total preparation time was established by subtracting the first reading from the second.

Definite methods of preparation were established and used for each vegetable. These were: by hand and by machine.

In preparing the vegetables "by hand," three variations of method were employed: (a) using the hand for snapping or breaking, (b) using a paring knife, and (c) using a special hand parer. In obtaining total time for vegetables prepared "by machine," the actual operation time of the machine was added to the time required for hand preparation after the vegetable was removed from the machine. Three individuals repeated each method three times on all of the vegetables.

Green beans were prepared by breaking off the ends of the bean and then breaking the pod in two or three pieces, depending upon the size. A second method was also used, whereby a paring knife was used to cut the ends of the beans to remove the strings and rust spots, and to cut them into pieces.

Beets and broccoli were prepared by only one method—cutting off the tops with a knife.

Cabbage was prepared by only one method, which consisted of two steps. First, all spotted and wilted outside leaves of the cabbage were pulled down to the crisp, fresh underleaves. The heads were then cut into quarters, sixths, or eighths, depending upon the size of the head, and the core removed.

Carrots were prepared by using the Hobart electric peeler, and then the hand parer and a paring knife.

Celery was prepared by cutting off the ends with a French knife; it was then sliced on the Hobart electric slicer followed by a French knife.

Corn was shucked and the silk removed by hand; then the ends were cut off with a French knife. The large ears were broken in two, for one method, and cut with a knife for the second method of comparison.

Eggplant was peeled with a paring knife. Slicing was done with both a French knife and with a Hobart electric slicer, for purposes of comparison.

TABLE I

Range and average time required to prepare 50-lb. lots of fourteen different vegetables

VEGETABLE	METHOD	TIME USED BY INDIVIDUAL 1		TIME USED BY INDIVIDUAL 2		TIME USED BY INDIVIDUAL 3	
		Range	Average	Range	Average	Range	Average
		min.	*min.*	*min.*	*min.*	*min.*	*min.*
Beans, string	Hand—b	320–402	367	360–385	371	375–400	385
Beans, string	Hand—a	114–177	135	226–240	234	240–250	245
Beets	Hand—b	8–10	9	8–10	9	7–9	8
Broccoli	Hand—b	58–66	61	60–67	64	55–60	58
Cabbage	Hand—b	13–17	16	18–25	23	19–21	20
Carrots	Hand—c	100–115	109	67–70	68	50–60	55
Carrots	Machine	16–30	25	30–32	31	16–18	17
Celery	Hand—b	90–98	95	86–97	92	93–100	98
Celery	Machine	50–60	54	52–58	55	50–55	53
Corn	Hand—a	30–35	34	33–36	34	38–40	39
Corn	Hand—b	75–80	79	83–91	88	80–90	83
Eggplant	Hand—b	90–95	91	92–95	94	88–95	90
Eggplant	Machine	75–80	76	98–110	102	75–79	75
Greens, mustard	Hand—a	68–70	69	67–70	67	68–70	69
Greens, mustard	Hand—b	70–90	82	72–90	83	70–75	73
Okra	Hand—b	320–340	334	360–380	372	350–360	357
Potatoes	Hand—b	66–80	75	69–90	77	145–150	147
Potatoes	Hand—c	72–95	87	75–82	76	120–125	122
Potatoes	Machine	31–36	34	30–35	33	31–33	32
Spinach	Hand—a	32–44	37	33–42	35	33–38	36
Spinach	Hand—b	31–41	35	30–39	34	33–38	35
Squash	Hand—b	19–20	19	39–41	40	38–40	38
Squash	Machine	29–31	30	28–31	28	28–30	29
Turnips	Hand—b	186–200	190	190–200	197	190–200	167
Turnips	Machine	22–30	26	19–20	19	18–20	19

Nature's "Bargain Basket"

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Rising costs are placing a severe strain on family food budgets. Now, more than ever, is the time to include citrus fruits with every meal. They are truly, nature's "bargain basket" of nutritional values with their universal appeal, low cost, natural sun-filled goodness, and varied store of essential nutrients.*

Florida citrus fruits and juices (fresh or canned) supply an abundance of vitamin C—highly important in developing bones and teeth, and in the maintenance of tissue vigor and strength . . . rich fruit sugars for quick energy "pick-up" . . . and other valuable minerals and vitamins.

Make them daily stand-bys in the family diet—for the nutritional factors so vitally important for all ages.

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Oranges Grapefruit Tangerines

**Citrus fruits are among the richest known sources of vitamin C; they also contain vitamins A, B_1, G and P; iron, calcium, citrates, citric acid and fruit sugars.*

Mustard greens and spinach require careful inspection during preparation. They were prepared by cutting off the tops with a paring knife and by breaking the stems with the fingers. Washing the spinach and mustard greens was not included in the preparation time.

Okra was prepared by cutting off the stem end with a paring knife and then cutting the pod into several pieces, where size varied greatly.

Potatoes were prepared by three methods; (a) peeling with a paring knife; (b) using a hand parer; and (c) using the Hobart electric peeler. When the potatoes were peeled with the electric peeler, not all of the skin was removed. This process was completed with a paring knife. Large potatoes were cut into pieces for uniformity.

Squash was prepared by cutting off the ends with a knife. Both a French knife and the Hobart electric slicer were used for slicing.

Turnips were prepared by using the Hobart electric peeler and by peeling with a paring knife.

RESULTS AND DISCUSSION

Table 1 records the range and the average time required by each of three individuals to repeat each of the methods three times on 50-lb. lots of vegetables. The preparation time was affected by the condition, the size, the number of units per pound, and the amount of work done by the hand method. The organization of the work center and the simplification of the work method are more significant in the controlling of time and motion than the type of knife used. The way in which the knife is used and where the pans are placed are more important than the original cost of the equipment. However, Goodenow (3) found that the selection of the most efficient tool can reduce still further expenditures of both time and energy.

The condition of the vegetable affected the time of preparation; that is, produce which was tough required a longer period to prepare than a crisp, fresh vegetable. The preparation time was considerably increased by the poor condition of the green beans, especially tough ones. The longer preparation time was also due in part to the larger number of units per pound, thus corroborating Johnson's (4) work.

The preparation time of cabbage was fairly constant, varying only when it was in poor condition. The preparation time was low compared with other vegetables, due no doubt to the larger units.

Carrots varied less than most of the vegetables.

Celery was found to require the longest time for preparation, due to the care required for cleaning. The poorer condition of the celery also contributed to the longer time.

The condition of the potatoes determined the time required for peeling in all of the three methods used. It was found that smaller potatoes and those irregular in shape required longer preparation time.

The regular vegetable cook in this dormitory has since been checking the times reported here. She has observed similar time variations for the different vegetables, although all of her processes are usually completed in less time than required for the students who did the work in this study. No doubt skill is acquired upon repetition with an accompanying decrease in time.

SUMMARY

String beans, mustard greens, okra, and spinach required the longest time for preparation, due to the large number of units per pound.

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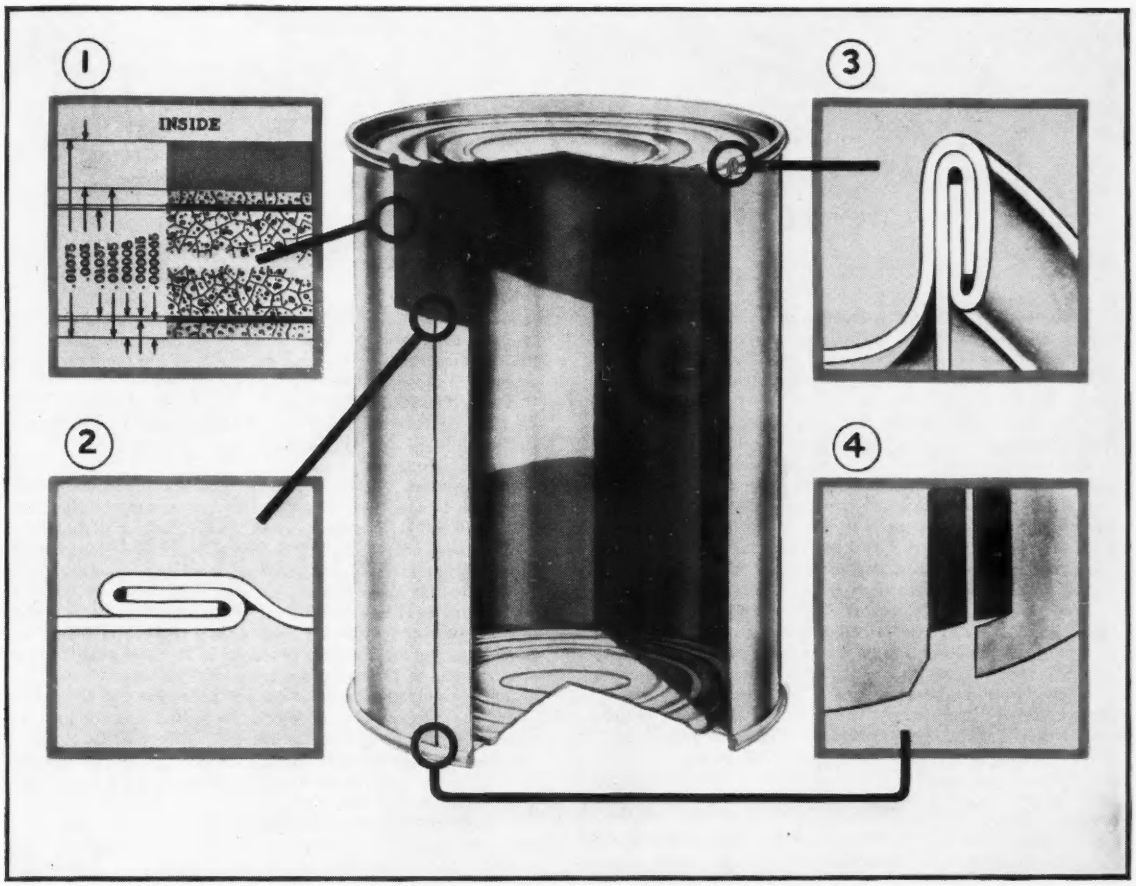
(1) GOBLE, E.: Time and My Hands. Purdue University Project Leaflet No. 27, February, 1944.
(2) Every Motion Counts. Home Management Bulletin, University of Wyoming, May, 1944.
(3) GOODENOW, H. A.: The comparative cost of the preparation of vegetables by machine and by hand in institutions. J. Am. Dietet. A. 8: 332, 1932.
(4) JOHNSON, L. H.: A study of the waste in and the time of preparation of certain fresh fruits and vegetables. Unpublished thesis, Kansas State College, 1931.

Diet in Tuberculosis

The main object in the dietetic treatment of the tuberculous patient is to enable him to regain his lost weight, but not to make him unnecessarily fat. The weight of an obese, tuberculous patient can be safely reduced at the rate of 3 to 4 lb. (1.4 to 1.8 kg.) per month, and his ideal weight is about 10 lb. (4.5 kg.) above the average weight for his age and height. A reduction diet must include an increased supply of vitamin A and ascorbic acid to preserve nutritive equilibrium. Protein requirement is estimated at 1.5 to 1.75 gm. per kilogram of body weight (Fishberg, M.: *Pulmonary Tuberculosis.* 4th ed. Philadelphia: Lea & Febiger, 1932, Vol. 2), and carbohydrates should furnish about 40 per cent of the caloric requirements. The healthy person at complete rest requires 15 calories per pound (Goldberg, B.: *Clinical Tuberculosis.* 5th ed. Philadelphia: F. A. Davis Company, 1946, Vol. 1), and from this standard a reduction diet can be estimated at the discretion of the physician. The patient's sense of well-being and satisfaction are factors to be considered. Thyroid extracts and amphetamine compounds are contraindicated. Diets rich in minerals have no proved value in the treatment of tuberculosis.—*From Queries and Minor Notes, J. A. M. A. 136: 1073 (April 17), 1948.*



The "Tin" Container

THE ILLUSTRATION above of the architecture of an enameled sanitary can shows that the term "tin can" is a misnomer.

Actually, the metal from which cans are made is not tin, but steel coated with a thin film of tin. The cross-section (see "1" above) shows the relative thicknesses of component layers of tin plate. Steel is large segment; first layer on either surface is tin-iron alloy, second is tin. Inside surface is enamel coating.

The metal to metal seals are made airtight through the use of solder, in the case of side seams (see "2" above), and sealing compounds in the case of the end or double seams (see "3" above). The notch (see "4" above) permits tighter sealing at bottom. Although a large proportion of cans are plain inside, an enamel coating can be applied if desired.

"Tin" containers have many advantages. They are strong, yet light. They can be fabricated, filled and permanently sealed at high speeds. Rapid heating and cooling of cans is possible, thus permitting high quality retention in canned foods.

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Book Reviews

Problems of Hospital Administration. By Charles E. Prall. Chicago: Physicians Record Company, 1948. Cloth. Pp. 106. Price $2.

The comparatively small size of this book is misleading when one considers the actual reading time it requires. One hundred and six pages are packed with detailed information presented in a highly technical and academic style.

The book is a report of a project undertaken by the Joint Commission on Education, co-sponsored by the College of Hospital Administrators and the American Hospital Association. The author, Charles E. Prall, an educator with experience in school and college administration, was the director of the project, whose purpose was the uncovering of common problems of hospital administrators.

One hundred hospital administrators were interviewed by Mr. Prall. Included were men trained in the administrative field, physicians, nurses, nuns, and clergymen. The hospitals ranged from under fifty beds to over eight hundred beds and were located in small towns and large cities. Geographically, they were distributed in the East, Southeast, North Central States, Middle West, and West Coast.

The method of inquiry and the details of the classification of the returns are carefully reported in Chapters 3 and 4. In Chapter 5, five hundred administrative problems are abstracted and classified. A large proportion of the problems fell under five main headings: working with the medical staff, medical care, business and financial management, community relations, and physical plant and equipment.

No discussion of possible solutions for the problems is included. The implications of the findings are expected to furnish more effective directives for the training programs for future hospital administrators.

The report is too academic for the casual reader but valuable for those concerned with this particular field.—*Martha Nelson Lewis, Ohio State University, Columbus.*

Nutrition in Health and Disease. By Lenna F. Cooper, Edith M. Barber, and Helen S. Mitchell. Philadelphia: J. P. Lippincott Company, 1947. Cloth. Pp. 729. Price $4.

This is the tenth edition of a standard textbook on nutrition and dietetics for student nurses. Progress in these fields has been so rapid that all dietitians will welcome this up-to-date information.

Subject matter has been planned to conform with the "Manual for Teaching Nutrition and Dietetics to Nurses" prepared by the American Dietetic Association. In many hospitals, coordinated teaching has been adopted, and *Nutrition in Health and Disease* has been written to accompany classes in medical nursing and pharmacology.

The sections on food selection and preparation have been combined so that recipes and methods are discussed along with food values, menus, and purchasing information.

Perhaps the most significant improvement in medical care in the past few years has been the increasing awareness of the patient as an individual, rather than as a "case of this or that." *Nutrition in Health and Disease* incorporates much of this commendable attitude in its teaching.

Textbooks for student nurses do not, as yet, show the trend to learning by reflective processes. Although we are beginning to think of the patient as an individual, there is little indication, so far, that we think of the student nurse as one.—*Virginia Monahan Bayles, Denver.*

Food, Nutrition, And Health. By E. V. McCollum and J. Ernestine Becker. 6th ed. Baltimore: The authors, 1947. Cloth. Pp. 146. Price $2.

It has been seven years since the preceding edition of this book appeared. The many developments in the science of nutrition in the interim make the appearance of the new edition of interest to the readers of this popular little book. While it has been largely rewritten, it retains the general organization and subject matter of earlier editions. For those who may have missed this book, it may be worth while to list the contents briefly. The introduction includes a brief sketch of mankind's experiences with food from the earliest gathering of edible products in the wild state to the applications of the modern science of nutrition.

The principles of nutrition are then discussed; carbohydrates; fat; protein; vitamins, including present knowledge of the more recently discovered members of the B-complex; and mineral elements. The dietary properties of foodstuffs—of both animal and vegetable origin—and the place of coffee and tea in the diet are concisely presented.

A series of chapters follow which are concerned with subjects that present pitfalls in nutrition to so many lay readers: pernicious anemia; diet and preventive dentistry; diet in pregnancy and lactation; the nervous system and nutrition; hygiene of the digestive tract; the diet and "acidity"; and the relation of diet to weight control. Life history in relation to diet and the dietary habits of man logically lead up to the planning of a system of diet which promotes health. The conservation of vitamin and mineral values in foods, guidance in planning meals, and menu suggestions constitute the final chapter of the book.

There is a wealth of information on the subject of food and nutrition which is available to the layman by means of the radio, newspaper, magazine, or book. Unfortunately, these channels provide so much misinformation that one can indeed become confused. This little book is especially designed to show the layman what diet can and cannot do insofar as health is concerned, and to make the reader aware of the exaggerated claims of many food advertisers, the false teachings of food faddists, and the exploitation of foods as medicines. The authors, who are leading scientists in nutrition, have again succeeded in presenting the subject matter in simple, non-technical language. It is especially worth noting that the authors depend entirely on a clear and interesting style of writing to win and hold reader interest. There are no illustrations or charts and no gaily colored book jacket to attract the reader—trimmings which all too often are the chief means to sales.

The professionally trained individual will welcome this new edition as a book to be recommended without reservation to the layman. In fact, it will prove to be a worth while reference for the doctor, nurse, and dietitian.—

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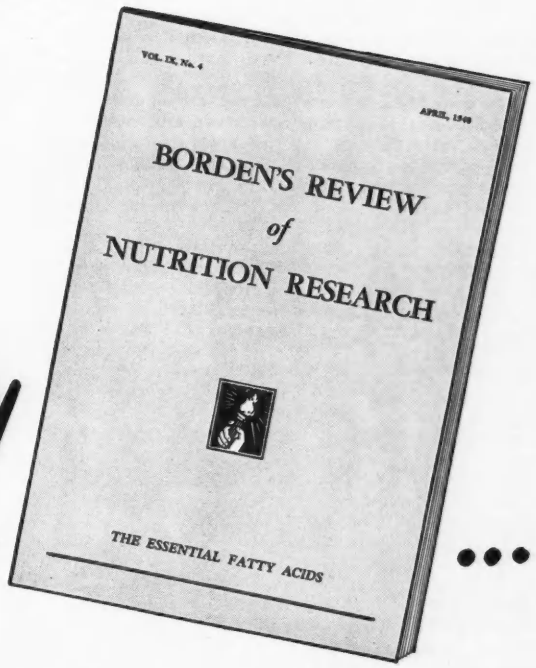

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Corinne Hogden Robinson, Lecturer in Nutrition, Temple University School of Medicine, Philadelphia.

The New Connecticut Cook Book. Compiled by The Westport Woman's Club. New York: Harper and Brothers, 1947. Cloth. Pp. 338. Price $3.

This new cook book is a successor to the popular *Connecticut Cook Book*. It contains over seven hundred recipes, of which more than six hundred appear for the first time. Many famous actors, editors, writers, painters, musicians, and professional people from the Westport Art Colony, as well as homemakers from Connecticut, have contributed their favorite recipes.

There is much in this new book to entice one into a kitchen. There are interesting chapters on Appetizers; Soups; Sea Foods; Breads; Eggs and Cheese; Meats and Poultry; Vegetables; Salads; Desserts; Pastries; Cakes, Frostings, Confections, and Cookies; Tea and Tea Sandwiches; Buffet Specials; Outdoor Grill; and Beverages. Here are savory recipes from all over the world and from various sections of our own country. Accent has been placed on the use of sour cream, herbs, and wine sauces.

Other interesting features of the book are the fascinating historical sketches by Van Wyck Brooks and the literary interludes by Robert L. Duffus, Bellamy Partridge, and Parke Cummings. One cannot overlook the thirty-nine artists who have illustrated the book so beautifully.

This book will not replace the standard family cook book, but it will give homemakers and dietitians new joys in cooking.—*Alice Cattanach, Assistant Dietitian, Grace New Haven Community Hospital, New Haven, Connecticut.*

The Operation of Job Evaluation Plans. By Helen Baker and John M. True. Princeton: Industrial Relations Section, 1947. Paper. Pp. 111. Price $1.50.

The report is based on experience with job evaluation plans of seventy-six companies representing a wide range of industries. The criteria of the success of the job evaluation plans studied is the satisfaction or dissatisfaction expressed by the management. Comparisons of experiences with different types of plans, namely, between point-and-factor plans on the one hand, and classification-and-ranking plans on the other, are clearly and specifically stated. However, in treating reasons for failure of plans and in stating the advantages of plans, the results of the study are generalized.

A valuable part of the book is the inclusion of a study of union attitudes affecting the operation of job evaluation plans with the reasons for union approval or disapproval, considering unilateral plans versus bilateral plans.

The authors have prepared a book that will be of definite value in providing background for establishing new evaluation plans, or for maintaining or revising existing plans. —*Janet Carlsen, The Johns Hopkins Hospital, Baltimore, Maryland.*

Far Eastern Cookery. By Elinor Burt. Boston: Little, Brown and Company, 1947. Cloth. Pp. 349. Price $3.

Elinor Burt, who teaches in one of the high schools of San Francisco, collected recipes from Siberian Russia and Japan to India and Australia when she visited in the Orient on a fourteen-month trip around the world. She was interested in the history of foods commonly used in the Far East and in the origin of typical dishes. She obtained recipes for better known dishes, like the sukiyaki of the Japanese and Russian borsch, as well as for items which seem a little unusual to Americans, such as the ghee of India made from melted water buffalo fat.

Some recipes lead the imagination far away, when the lists of ingredients include items like bamboo shoots, banana leaves, breadfruit, ripe plantains, mangoes, tamarinds, passion fruit, and loquats. The author endeavored to give some idea of general food habits common in places visited. One sees the British influence in New Zealand dishes, like Wellington beefsteak pudding. And chapati, the important unleavened bread of India, is described. But it seems a little odd to find a selection of salads and salad dressings of China. Actually, the Chinese learned long ago that safety lay in consuming freshly cooked, hot food. Likely, salads would be used only by those few who have had considerable contact with Westerners and who are able to procure fresh vegetables which may be eaten safely without cooking. Similarly, the section on Australian food makes no mention of rabbit, although persons who have made their home on that continent report rabbit in general use.

For practical use, a book of this type should contain tested recipes which another may follow. Perhaps no one will endeavor to bake a Peiping duck without additional information. In fact, students from Peiping say that a good Chinese cook would hesitate to try this delectable dish, and that only in the famous old duck restaurants can it be done properly. Much as Americans may enjoy soy sauce on their Oriental food, the easiest course may be to purchase it, rather than to try to make it at home. In the Orient, the good soy sauces come from shops where the "know how" has been handed down for generations. But in any event, Miss Burt provides interesting reading and stimulates interest in foods from other parts of the world.—*Dr. Martha M. Kramer, Assistant Dean, Department of Home Economics, Kansas State College, Manhattan.*

Personnel Manual for Executives. By Ross Young. New York: McGraw-Hill Book Company, 1947. Cloth. Pp. 207. Price $2.50.

To be able to understand the author's feeling that human nature is the motive for better personnel management, it is important to follow the instructions in the preface and begin by reading Chapter 13. By these rather unusual instructions, one immediately develops interest and a desire to understand this point of view and to follow in detail the explanations for human progress. In emphasizing human relationships, many possibilities of utilizing the techniques and knowledge of psychology in instructing have been discussed with suggestions for practical treatment. Today, as in the primitive ages, man meets his problems by the same "three F" attacks—fight, flight, and flank. The psychologist, the psychiatrist, the industrial psychologist, and the genuinely trained counselor and personnel worker have much to give American business in developing the human potential of its employees.

Although written primarily for industry, dietitians in hospitals and supervisors could apply many of the suggestions advanced in this book. It is written in a concise and interesting style.—*Edith A. Jones, Dietitian in Charge of Curriculum, The Johns Hopkins Hospital, Baltimore.*

Blood Cholesterol

Ingestion of neutral fat (triglyceride), the predominating lipid in animal and vegetable culinary fats, may cause a slight elevation in blood cholesterol content, but values return to normal in the post-absorptive period. In this respect, both animal and vegetable fats bring about the same response. However, animal fats contain cholesterol but vegetable fats do not. Plant sterols are not absorbed to any significant extent by man, although cholesterol is readily assimilated. For this reason, animal fats should elevate the blood cholesterol level to a greater extent. When blood cholesterol is elevated following ingestion of vegetable fats, it is assumed that the cholesterol must be mobilized from sources within the body.—*From Queries and Minor Notes, J. A. M. A. 137: 821 (June 26), 1948.*

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Current Literature

Contributed by Janette C. Carlsen and Ethel M. Miller, Dietary Department, The Johns Hopkins Hospital; Mrs. Quindara Oliver Dodge, Women's Educational and Industrial Union, Boston; Mrs. Martha Nelson Lewis, Ohio State University Hospital; and the Journal staff.

THE AMERICAN JOURNAL OF DIGESTIVE DISEASES

Vol. 15, May, 1948

*Peptic ulcer and pregnancy. S. P. Bralow, S. Scheinberg, and H. Necheles.—p. 137.

Peptic Ulcer and Pregnancy. It is generally believed that during pregnancy peptic ulcer rarely appears, rarely flares up, and often heals. The usual explanation for the improved peptic ulcer during pregnancy is that the gastric acidity is diminished and that the abdominal complaints during pregnancy are usually ascribed to the pregnancy or the mental condition of the patient. The authors believe that obstetricians should not feel safe in view of the reported rarity of the co-existence of peptic ulcer and pregnancy, but should study carefully all cases of persistent heartburn, epigastric distress, and so on, in their patients, for peptic ulcers may produce serious complications during or shortly after pregnancy.

BRITISH MEDICAL JOURNAL

No. 4858, May 15, 1948

*Aetiology, diagnosis, and treatment of early vitamin-deficiency states. Z. A. Leitner.—p. 4558.

Early Vitamin Deficiency States. A brief discussion of etiology, diagnosis, and the therapeutic measures that may result in a conditioned deficiency state is given. The clinical diagnosis of early deficiency states is exceedingly difficult. Physical signs may be absent and laboratory findings may not be characteristic in the early stages. Diagnosis should not be made on the basis of symptoms alone. Careful evaluation of the dietary history, symptoms and signs, the available laboratory data, and response to specific therapy may help to establish the cause.

ENDOCRINOLOGY

Vol. 42, April, 1948

*Experimental diabetes produced by the administration of glucose. F. C. Dohan and F. D. W. Lukens.—p. 244.

Glucose and Diabetes. A persistent increase in the concentration of blood glucose has frequently been considered a factor in the production of damage to the islands of Langerhans, and in this experiment persistent diabetes was produced in cats by the administration of large amounts of glucose. The development of islet lesions was related to the degree and particularly to the duration of hyperglycemia. Other factors, such as excessive caloric intake, weight gain, and local action of intraperitoneal glucose, appear to have no relation. After hyperglycemia was established, the course of the lesions and the development of diabetes closely resembled the sequence of events observed in experimental pituitary diabetes.

JOURNAL OF THE AMERICAN DENTAL ASSOCIATION

Vol. 36, April-May, 1948

*Studies in the dietaries of contemporary primitive peoples. M. Klatsky.—p. 385.

Diet and Teeth of Primitive Peoples. The dietaries of contemporary primitives are limited in choice, and they are not as abundant, varied, or balanced as civilized diets. The dietaries are poor in quality and lack many of the essential nutrients. The dental conditions of these people were studied by examining the skulls of primitive people. Most of the jaw bones were larger, sturdier, and in better occlusion than those of civilized people, and there was much less dental decay. It was concluded that faulty nutrition did not cause caries or abnormality of the masticatory organs. These authors believe that the refined texture of food today is the cause of much of our modern decay and poorly developed jaws. Food that is bulky and fibrous has a cleansing effect on the teeth when acted upon by the forces of vigorous mastication.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Vol. 137, May 15, 1948

*Efficacy of lipotropic substances in treatment of cirrhosis of liver. F Steigmann.—p. 239.

Vol. 137, June 5, 1948

*Treatment of eczema (atopic dermatitis) in infancy. J. Glaser.—p. 527.

Lipotropic Substances and Cirrhosis of the Liver. The results of different types of treatment of cirrhosis of the liver were observed in 247 cases. These cases were divided into three groups: (a) The first group, treated in the years 1937 to 1940, received a diet low in carbohydrate (350 to 500 gm.) and low in fat and protein. (b) The second group, treated from 1941 to date, received a diet high in carbohydrate (350 to 500 gm.), high in protein (100 to 150 gm.), and low in fat (about 50 to 70 gm.). In addition they received large doses of vitamin supplements. (c) The third group, treated since 1943, were on a regimen similar to that of the second group, but the diet was augmented by cystine, choline, or methionine. The observations made on these groups seem to indicate that the addition of lipotropic substances (choline alone, choline and cystine, or methionine) enhances the beneficial effects of the high-protein and high-vitamin diet.

Treatment of Eczema in Infancy. Atopic dermatitis, commonly known as infantile eczema, is the most important skin disease of infancy and childhood. The presence of this condition is an indication that one is dealing with an allergic child. One study has shown that the incidence of eczema was lowest among breast-fed infants and suggests the need of breast feeding for infants born in allergic families. Part

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of the treatment of atopic dermatitis involves diet therapy. A simple elimination diet for a child one year old or younger is described, and procedure for adding foods is discussed.

THE JOURNAL OF BIOLOGICAL CHEMISTRY

Vol. 174, May, 1948

*Further studies of unidentified factors required in the nutrition of *Lactobacillus casei*. L. J. Daniel, M.L. Scott, G. F. Heuser, and L. C. Norris.—p. 71.

Nutrition of *L. Casei*. Unidentified growth factors for several Lactobacilli have been found in refined liver extracts and in tomato juice. Reported here is a study made to determine the response of *L. casei* to liver extract and tomato juice. The results demonstrated that there are two or possibly three unidentified factors necessary for the growth of *L. casei*. One of these is strepogenin; the other is a factor or factors associated with animal proteins and found in high concentration in certain liver extracts used for the treatment of pernicious anemia. There were great differences in the response of the organism to the nine liver extracts tested (these variations did not seem to be related to the degree of refinement of the preparation). In the studies with tomato juice, it was shown that two growth-promoting factors were present. One, rather easily adsorbed by norit, is probably the same as the growth-promoting factor present in liver extracts. The other factor, not readily adsorbed by norit, produces an effect similar to that of strepogenin. The growth-promoting activity of tomato juice decreased as the age of the canned product increased.

JOURNAL OF CLINICAL INVESTIGATION

Vol. 27, March, 1948

*Further studies of the effects of insulin on the metabolism of vitamin C. S. Sherry and E. Ralli.—p. 217.

Effect of Insulin on Metabolism of Ascorbic Acid. It was found that regardless of the method of insulin administration, there was a prompt fall in plasma and urinary ascorbic acid levels. Further tests showed that there was no action of insulin on ascorbic acid *in vitro* and that insulin did not affect the synthesis of ascorbic acid. It is suggested that insulin in its action or actions causes a transient transfer of ascorbic acid from the plasma and extracellular fluid into the tissues, possibly for some catalytic function of ascorbic acid.

THE JOURNAL OF LABORATORY AND CLINICAL MEDICINE

Vol. 33, April, 1948

*The effect of oral administration of casein hydrolysate on the total circulating plasma proteins of man. B. F. Chow and S. deBiase.—p. 453.

*Studies on the minimum protein requirements of adult dogs. C. F. Wang, A. Lapi, and D. M. Hegsted.—p. 462.

Casein Hydrolysate and Plasma Proteins. Diseases and physical injury can cause a decrease in plasma protein concentration and a change in the composition of the plasma proteins. The changes may be a decrease in percentage of albumin and an increase in percentage of alpha globulins. Changes in the plasma protein pattern may be due to protein depletion, so the feeding of a suitable protein should result in a return toward normal of the plasma protein pattern without necessarily causing any significant change in the disease itself. Casein hydrolysate was given to twenty-eight hypoproteinemic and hypoalbuminemic patients with a variety of diseases. The hydrolysate promoted the regeneration of both the plasma albumin and globulin fractions. "The results are consistent with the belief that diverse medical and surgical conditions are characterized by varying degrees of protein depletion which can be corrected by large amounts of casein hydrolysate."

THE JOURNAL OF NUTRITION

Vol. 35, May, 1948

*The relation of diet composition and vitamin C to vitamin A deficiency. J. Mayer and W. A. Krehl.—p. 523.

*The effect of isocaloric substitution of alcohol for dietary carbohydrate upon the excretion of B vitamins in man. R. E. Butler and H. P. Sarett.—p. 539.

Growth and reproduction of rats fed Army combat rations. E. M. Sporn and C. A. Elvehjem.—p. 549.

Studies with monkeys fed Army combat rations. E. M. Sporn, W. R. Ruegamer, and C. A. Elvehjem.—p. 559.

Diet Composition in Vitamin A Deficiency. Previous studies have shown that a deficiency of vitamin A in young growing animals decreases the efficiency of utilization of the food consumed. However, rats exhibiting the early symptoms of vitamin A deficiency respond favorably to the administration of ascorbic acid. This paper presents further data as to the influence of diet on the utilization of food by rats deficient in vitamin A. It was found that increased levels of dietary protein resulted in decreased efficiency of protein utilization for growth, decreased efficiency of food utilization, decreased survival time, and a general increase in severity of the symptoms of vitamin A deficiency. Better results were obtained with the isocaloric replacement of sucrose by fats. One of the first symptoms of the vitamin A deficiency syndrome was a depletion of ascorbic acid reserves. Administration of ascorbic acid restored the adrenal, liver, and blood ascorbic acid values to normal and moderated the severe symptoms of the deficiency.

Alcohol and the B-Complex. Experiments were undertaken in an effort to obtain further information concerning the relationship of alcohol metabolism in man to the requirements for the B-complex vitamins. Two well-nourished adult males were the subjects of the study. It was shown that by isocaloric replacement of carbohydrate by alcohol in an adequate diet, there was an increased excretion of thiamine and N-methylnicotinamide. These results present the possibility of a thiamine and niacin-sparing action of alcohol. No significant changes were found in the excretion of creatinine, nitrogen, tryptophan, pantothenic acid, and pteroylglutamic acid. The excretion of 4-pyridoxic acid on a carbohydrate diet was increased to unexplainably high levels. The findings in this experiment are probably not applicable to cases of excess intake of alcohol with a low caloric intake of other foods.

THE JOURNAL OF PEDIATRICS

Vol. 32, April, 1948

*Hunger edema in children. E. P. Petrides.—p. 333.

Hunger Edema in Children. This report concerns 106 children—66 boys and 40 girls—from the tenement and slum districts of Athens, Greece, who were admitted for hospitalization from September 25, 1941 to February 5, 1943. Of the total, sixty-three belonged to the one- to three-year-old group which had passed the period of weaning from the breast. Above this age there was a lower incidence of hunger edema, probably due to gastrointestinal adjustment of the older children to the poor quality of food then available with concomitant lower incidence of gastrointestinal disturbance. The conclusions drawn were that nutritional edema is due to hypoproteinemia and the resulting low osmotic value. There appears to exist a direct relationship between the degree of hypoproteinemia and edema. In the younger children there is an absolute necessity for animal protein, while in older age groups large amounts of vegetable protein, ranging from two to threefold the normal values, may induce temporary improvement. Egg white alone was demonstrated to have no effect on hypoproteinemia and nutritional edema, in opposition to milk and egg

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yolk. Other factors, such as changes in capillary permeability, lack of fat, avitaminosis, and excessive intake of salt and water, have only a contributory significance. The susceptibility to nutritional edema was more marked in boys than girls.

THE NEW ENGLAND JOURNAL OF MEDICINE

Vol. 238, May 6, 1948

*Food sensitivity in 100 asthmatic children. L. W. Hill.—p. 657.

Food Sensitivity. To determine the influence of food upon asthmatic children, 100 were chosen between the ages of three and twelve years, partly from the clinic and partly from private practice. They were observed and were tested by the scratch method. Theoretically, any food can cause asthma; practically, not many foods commonly do so. Fish, egg, walnuts, peanuts, and chocolate are the most important. Wheat and milk can cause asthma in children, but do not often do so. Sensitivity to food, which should always be taken into consideration in asthmatic children, is of relatively little importance in comparison with sensitivity to pollen, other environmental allergens, and upper respiratory infections.

NEW YORK STATE JOURNAL OF MEDICINE

Vol. 48, May 15, 1948

*Treatment of diabetic emergencies. Conferences on therapy.—p. 1172.

Treatment of Diabetic Emergencies. This article includes discussion concerning treatment of some specific emergencies which arise with the diabetic patient. The chief medical problems requiring urgent treatment in the diabetic patient are due to either too much or too little insulin. Emphasis was placed on the need for educating the diabetic patient in the matter of diet, dosage of insulin, and examination of the urine for sugar and acetone so as to enable him to recognize the reactions in their earliest forms, to take adequate precautions to prevent them, and to take the first steps in controlling a reaction promptly. Several matters involved in the medical emergencies of the diabetic were discussed.

PUBLIC HEALTH REPORTS

Vol. 63, June 11, 1948

*Nutrition studies. II. Methods of collecting dietary data. M. G. Eads and A. P. Meredith.—p. 777.

Collecting Dietary Data. This is the second in a series of reports on the methods employed in evaluating human nutrition on a public health scale. In this article, attention is given to techniques of accumulating dietary data and the conditions under which each method can be used most satisfactorily. The one-day diary type of diet record is considered preferable, and three steps to be taken in obtaining such a record are enumerated. An illustration of a diet record is included. Presentation of the diet record to groups and to individuals is discussed, and an explanation is given as to how family studies are handled.

SCIENCE

Vol. 107, May 21, 1948

*Loss of contractility of the uterus and partial atrophy of the uterus and ovaries in albino rats fed choline-deficient diets. M. Peet and M. M. Sampson.—p. 548.

Vol. 107, June 11, 1948

*Amino acid impairment in casein heated with glucose. A. R. Patton, E. G. Hill, and E. M. Foreman.—p. 623.

Flowering of the Jersey type sweet potato. J. J. Mikell, J. C. Miller, and J. B. Edmond.—p. 628.

Vol. 107, June 18, 1948

*L-penicillamine as a metabolic antagonist. J. E. Wilson and V. duVigneaud.—p. 653

Effect of Choline Deficiency on the Uterus. Experiments with pregnant albino rats fed a choline-deficient diet were carried out in order to study further the effect of choline deficiency on the uterus. Results indicated that choline deficiency in mature albino rats caused a loss of contractility of the uterus and a partial atrophy of the uterus and ovaries. Furthermore, there was an accumulation of fat in the liver and hemorrhages in the kidneys. Choline supplements prevented such abnormalities, facilitated the mobilization of fat from the liver, and led to the elimination of excess fat by skin glands.

Heat Damage in Casein. Previous tests have shown that partial inactivation of free amino acids and amino vitamins results from glucose-heat treatment. However, this evidence does not prove that amino acids are similarly attacked in intact proteins. By experimenting with nine essential amino acids, it was found that at least three (lysine, arginine, and tryptophan) were partially inactivated as a result of glucose-heat treatment. These results emphasize the importance of questioning the effect on nutritive value of adding commercial products containing such reducing sugars as glucose and maltose to foods that are to be heat processed.

L-Penicillamine as a Metabolic Antagonist. It has been shown that when L-penicillamine was added to the diets of young albino rats, growth was inhibited. Choline was effective in counteracting the toxic action of L-penicillamine. In order to study the relationship of choline and penicillamine, rats were fed a choline-free diet. Not only was choline found to be effective in restoring growth, but aminoethanol and its derivatives were also capable of counteracting the effect of penicillamine. The unexpected relationship between this series of compounds and penicillamine is now under further investigation.

SOUTHERN MEDICAL JOURNAL

Vol. 41, May, 1948

*Multiple calcinosis associated with hypervitaminosis D. G. McLean and L. Lebo—p. 389.

Prevention of heat prostration by use of vitamin C. W. L. Weaver.—p. 479.

Hypervitaminosis D. Extreme care should be exercised in giving massive doses of vitamins without sufficient knowledge of the therapeutic effect or the toxicities and potential dangers to the patient. In current medical literature there are more reports and investigations calling attention to the dangers of excessive and prolonged usage of vitamins. A case report is presented that shows the effect of excessive dosage of vitamin D. When the vitamin was withdrawn, the patient was able to metabolize calcium efficiently; previously noted calcified deposits disappeared; there was no evidence of anemia, and renal function greatly improved.

THE TRAINED NURSE AND HOSPITAL REVIEW

Vol. 120, June, 1948

*Dr. William Beaumont and the mysteries of digestion. E. Podolsky.—p. 453.

Medical History of Digestion. This account of the opportunities which Dr. William Beaumont, a young Army surgeon, had to study digestion is a most interesting piece of history. The opportunity came when, in 1882, the doctor was called in to treat a young man on the northern Michigan frontier who had been shot in the stomach. Because the opening in the stomach never healed, Dr. Beaumont was able to spend a number of years studying digestion. His findings formed the basis of our knowledge of digestion.

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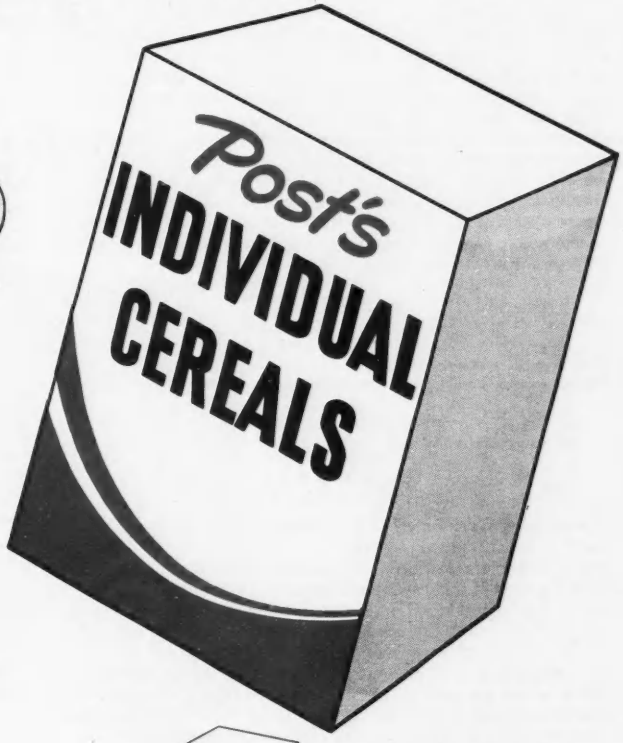

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POST'S *Individual* **CEREALS**

AMERICAN RESTAURANT MAGAZINE

Vol. 32, May, 1948

*Employee meetings. J. B. O'Meara.—p. 43.
How to keep electrical equipment operating. T. Trail.—p. 58.

Employee Meetings. Plan to have employee meetings. Helpful suggestions are given for making such meetings interesting for the employees. For instance, hold meetings for the heads of departments beforehand to discuss the most vital problems; start meetings and stop them at specific times; set the time far enough in advance so that all employees can plan to attend; meet in a comfortable, cheerful room and have refreshments to release the employees' tension; require each employee to keep and hand in a notebook; introduce all new employees; discuss and demonstrate outstanding problems; have outside speakers or one of the group lead the discussion; finally, compliment employees for work well done.

BUILDINGS

Vol. 48, April, 1948

*How to assign work areas.—p. 40.
Efficient window washing requires careful training. R. W. Walker.—p. 74.

Vol. 48, May, 1948

Can you keep peddlers and canvassers out of your building?—p. 23.

Vol. 48, June, 1948

*Control of cleaning supplies. D. D. Hedges.—p. 40.

Assigning Work Areas. An efficient method of allocating work areas to cleaning employees has been developed. Called Gilbert's Formula, the perfected plan was based upon a record of the work performed by janitors who handed in nightly reports until adequate data had been assembled. The nightly report included a count of services, the square feet of the service area, and the length of time spent cleaning each service. The study showed that a worker was able to clean an average of 275 work units per hour, and it also showed the percentage of time for each of four operations incident to cleaning. It clearly demonstrated that the basis of 200 work units per hour used in the formula is not only fair, but can be materially increased if the manager so desires. A graphic chart illustrates the work area schedule finally set up by Mr. Gilbert.

Control of Cleaning Supplies. A control system for cleaning supplies is suggested. All supplies are put into locked rooms and then distributed by cleaning supervisors. Each item issued is recorded; thus a type of perpetual inventory is achieved. Maids and janitors are assigned a locker in which they keep cleaning equipment, and each is responsible for his own. New equipment is issued upon presentation of the worn-out pieces. A monthly physical inventory is taken and checked against the perpetual inventory. Purchases are based upon test samples, the tests being made by the employees and the storekeeper or manager. Complete instructions are given for cleaning procedures, and constant surveys pertaining to correct amounts of supplies needed are made and checked against the actual amounts used. The system should result in increased savings.

FOOD INDUSTRIES

Vol. 20, May, 1948

Improving frozen foods through microbiological control. B. E. Proctor and J. T. R. Nickerson.—p. 76.
*Margarines are unaffected by low temperature storage. A. A. Kiess, R. W. Bates, and C. K. Wiesman.—p. 110.

Vol. 20, June, 1948

Flour bleaches appraised. D. B. Pratt, Jr.—p. 82.
*Lard takes on new properties. F. C. Vibrans.—p. 94.
*Frozen food research program is launched at Georgia Tech. F. Bellinger and T. W. Kethley.—p. 98.
Predict dry milk shortage.—p. 122.

Storage of Margarine. A study was made of the effect of low temperature storage on the quality of margarine. Margarine is made from vegetable oils, animal fats, or a combination of both. Margarine compositions and methods of manufacture are described. Although margarine is usually kept under refrigeration during distribution and marketing at a temperature of 40° to 50°F., it has been thought that low temperature storage should not affect the margarines adversely. Results have indicated that margarines stored for 538 days at 5° to −10°F. kept their original quality. Those stored at 28° to 45°F. were not marketable.

New Properties of Lard. The current trend in the manufacture of lard is to improve the product by increasing its stability, reducing flavor and odor, improving its emulsifying property, and providing better packaging. The steps in preparing lard are reviewed in order to show how and where the improvements are being made.

Frozen Food Research. Comparatively little research has been carried on to determine the best freezing method for a particular food. A program has been initiated at the Georgia School of Technology by which data collected on freezing methods can be applied at a later date to commercial practice. The program is concerned with the problems of blanching, the selection of media for immersion freezing, and histological and colloidal changes during freezing and storage. Immediate and practical problems on which accurate data are needed include: (a) a study of potential solvents for immersion freezing; (b) optimum storage conditions; (c) perfected packaging with consideration for both storage and consumer interests; and (d) the state of maturity and varietal selections of the foods most suitable for freezing.

HOSPITAL MANAGEMENT

Vol. 65, May, 1948

*Fast, efficient food service results from careful planning. M. E. Gerfen.—p. 98.
Increasing interest in nutrition in relation to diseases. B. F. Keltz.—p. 100.

Vol. 65, June, 1948

*Five steps to effective institutional buying. A. A. Frooman.—p. 96.
New colorful chinaware designs for hospitals.—p. 107.

Improving Food Service. Because the food service at the Conemaugh Valley Memorial Hospital in Johnstown, Pennsylvania, was not as efficient as it should have been, a committee was formed, consisting of the chief dietitian, the chief engineer, the purchasing agent, the architect, the kitchen engineer, the general contractor, and the superintendent. The problems to be overcome in remodeling were outlined and general improvement plans were developed. The procedure followed by this advisory committee is described in this article.

Effective Food Buying. The author stressed the fact that many buyers of food for large institutions do not purchase food to the best advantage. Not enough is known about varieties, grades, brands, and geographic preference. In order to overcome this situation, it is suggested that the food buyer gain as much information as possible from his established sources of supply, including canners' organizations and the U. S. Department of Agriculture. Five basic steps to institutional food buying are given considerable attention. Briefly, the steps are as follows: (a) Find out what the food industry offers. (b) Determine what best fits your needs. (c) Compile written specifications covering your selections. (d) Work out a buying procedure and decide upon a course of action. (e) Check and inspect all deliveries.

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HOSPITALS

Vol. 22, May, 1948

Getting at the root of a high labor turnover. H. Schoenfeld.—p. 42.
*Good taste in food starts with a standard recipe file. A. B. Atkinson.—p. 56.

Good Meals. Four of the most important tools of a dietitian in serving attractive meals daily are: standardized recipes, recipe work sheets, schedules, and timing of production. These points, as applied at Teachers College, Columbia University, are discussed in this article. The standard recipes should not leave anything to the imagination of the worker. Work sheets are valuable in instructing students and following the procedure through with the cook. These work sheets should include information on total yield, portions per pan, size of pan, cost, and acceptability. Timing of production is also important. Schedules should be closely correlated with menus in order that food will not be prepared too far in advance. Illustrations included in this article are: a standard recipe, a recipe work sheet, a recipe classification, and standard capacities for hot table serving pans.

HOTEL MANAGEMENT

Vol. 53, March, 1948

Principles of kitchen layout. XI. Installing a bake shop. A. W. Dana.—p. 63.

Vol. 53, April, 1948

*How to reduce china breakage. W. A. Betz.—p. 52.
Principles of kitchen layout. XII. Efficient seating arrangements. A. W. Dana.—p. 58.

Vol. 53, May, 1948

When and where fresh fruits are available.—p. 83.
When and where fresh vegetables are available.—p. 90.

Reducing China Breakage. Hints on how to reduce china breakage are given. A sample inspection schedule for various types of china is included and a number of pictures illustrating techniques in stacking and caring for china are included. Suggestions as to how to save the glaze on china and methods of storage are mentioned, too.

HOTEL MONTHLY

Vol. 56, May, 1948

Five steps to effective institutional food buying.—A Frooman.—p. 23.
Idle basement space converted into a smart, modern cafeteria.—p. 35.
*News of manufacturers and supply houses.—p. 64.

Automatic Juicer. New automatic juicers have been designed to extract the maximum amount of juice and valuable material from fruit and vegetables. The vegetable juicer crushes the entire vegetable or deciduous fruit. The fruit, the pulp, and seeds drop into a perforated metal basket revolving at high speed; the juice runs out through the perforations into a stainless steel bowl and then out the juice spout. Centrifugal force pushes the pulp over the rim of the basket and out the expulsion spout. All parts are removable for easy cleaning.

INSTITUTIONS

Vol. 22, March, 1948

*Original food service features.—p. 2.
*Mass feeding sanitation. W. H. Haskell.—p. 3.
*Maintenance on regular schedule preserves floors.—p. 3.
*Radiant heat plan used for freezing areas.—p. 10.
*City inspections lead to training for foodhandlers.—p. 41.
*Wanted: Potatoes built-to-order for specialty serving.—p. 65.
Handling and care of enameled ware is key to long life.—p. 109.

Vol. 22, April, 1948

*Industrial sanitarians raise standards through cooperation. W. H. Haskel.—p. 3.
*Program outlined for training new culinary workers.—p. 18.
*Lavish care of toast in six-point plan of operation.—p. 22.
Institution kitchen is springboard for efficiency planning.—p. 44.

Plan for a Restaurant. One of the outstanding entries in the *Institutions Magazine* second annual food service contest was a new restaurant in South Bend, Indiana. The special feature of this restaurant display was the kitchen. Blueprints showed the following facts: An abundance of floor drains makes for ease and completeness in cleaning and sanitizing. The stainless steel kitchen equipment is easily cleaned and a pride to employees. For the safety of employees, the kitchen terrazzo floor contains carborundum, resulting in a non-skid floor. Use of steam pressure cookers speeds food preparation. Provision for employees to eat together in an employees' dining room is good for morale. The location of complete fountain, coffee urn, sandwich bar, and refrigeration units at each end of the long counter saves time, speeds service, and eliminates congestion. Varying booth sizes and arrangements permit the seating of parties of from two to twelve people. Other features of the kitchen are described in detail.

Sanitation. This is the second of a series of articles on improving the status of sanitation by practical, on-the-job action. The purpose of this article is not to present a detailed discussion of the disease transfer in eating and drinking establishments, but to impress upon the owners and operators of these establishments the responsibility that is inherent in their business. Every precaution should be taken by them to prevent bacterial contamination of all eating and drinking utensils as well as food. There are two essentials of utmost importance to the success of a sanitation program. The first is the belief by the operator that sanitation is important to his business, and the second that he impart to all his employees the same belief. A discussion of sanitation factors is given under three headings: (a) the building, (b) utensils, and (c) food.

Floor Maintenance. Proper cleaning methods as well as regular cleaning schedules are necessary in the maintenance of flooring. The Asphalt Tile Institute has prepared a few simple rules for maintaining asphalt tile floors. These directions are outlined in the article.

Heating for Freezing Areas. A system of installing modified radiant heating to prevent concrete floors from buckling and disintegrating has been developed for freezing rooms and refrigerated storage rooms. The installations make use of wrought iron pipe coils embedded in concrete. The new system of radiant heating employs a structural floor slab, a layer of insulation, and the finished floor slab in 6-in. layers. A heating medium of fuel oil is used. The heat output is sufficient to prevent freezing of the insulation even though the temperature may be reduced to −30°F.

Training Food Handlers. The subject of food plant sanitation was revived after a survey of the food manufacturing plants in Baltimore, where it was found that the two basic reasons why food establishments were not clean were (a) untrained personnel and (b) difficult-to-clean equipment and equipment located so that the premises could not be cleaned readily. Changes in food control laws were made to include food handler instruction as a means of effecting corrections in food establishments. A medical care plan includes in many places mandatory inspection and licensing of hospitals, nursing and convalescent homes, and homes for the aged and for mental patients. Inspections of food storage and preparation facilities can be carried out in the same manner. Instruction of the food handler and supervisory personnel can be carried on through classes. Two types of instruction are suggested: the accepted instruction for the food handler as devised for the average lay worker and the instruction for nurses, dietitians, and managers.

Potatoes. There is no such thing as an "all purpose" potato. When it is good for frying, it isn't good for cooking.

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A good salad potato is not good for mashing and vice versa. Experiments are under way in the U. S. Dept. of Agriculture to determine the suitability or unsuitability of a tuber for a specific purpose in cooking. It is hoped that some day each delivery of potatoes will be defined as to *variety*, *specific gravity*, and *sugar content*. The food service manager will be provided with information as to what he can or cannot do with the potato, and the grower and shipper will profit by the increased consumption.

Industrial Sanitarians. A sanitarian is one engaged in the practical application of sanitary science. The Carnegie Institute reported that 15 per cent of success is due to technical training and 85 per cent to necessary personal qualities. A sanitarian finds himself faced with the problem of "selling" sanitation to the person who employed him. Much of the cooperation between industry and control officials rests with the industrial sanitarian. The sanitarian must keep up with sanitation advancements. The specific duties of the sanitarian vary with the situation as found in restaurants, food processing plants, and official agencies. Cost of maintenance, installation, and repair must figure in the sanitarian's program. Sanitarians are in a position to bring about friendly relations between industry and control agencies.

Training New Culinary Workers. In an effort to replenish the dwindling supply of chefs and maintain quality of food, the American Hotel Association has outlined a program for beginners in culinary occupations. In this paper general rules and regulations are outlined for standards of cleanliness and for the terms of apprenticeship. The various phases of training in the kitchen are described.

Making Toast. A successful breakfast depends to a large extent upon the way in which the toast is prepared. Six procedures to follow in making good toast are described.

THE MODERN HOSPITAL

Vol. 70, May, 1948

*City owned hospitals can save by centralizing formula preparation. A Beresniakoff.—p. 85.
*How to estimate the hospital's grocery bill. M. Kaufman and G. H. Trimble.—p. 112.

Centralized Formula Preparation. The preparation of infant formulas cannot always be accomplished under the necessary aseptic conditions. This is especially true where supervision is not adequate and where working space and equipment are not what they should be. The suggestion is made that, especially in the case of city-owned hospitals, the city government could contract with existing reputable laboratories for the daily supply of prepared formulas. This plan is also applicable in the case of voluntary and proprietary general and maternity hospitals. In a case where a large city owns a number of hospitals, it might be possible to build a central laboratory just for the purpose of preparing formulas.

Estimating Food Cost. In this article, methods are presented for computing raw food costs as a basis for budgetary estimates. Directions are given for computation of food group prices, for estimating raw food requirements and costs per person per week, and for estimating raw food requirements and costs for a particular hospital.

THE NATION'S SCHOOLS

Vol. 41, May, 1948

Learning to cook on a large scale. E. H. Enger.—p. 64.
*Central kitchen operation pays. A. A. Knoll.—p. 65.
*What's new for schools.—p. 133.

Central Kitchen for School Lunch. Until a second kitchen was added to the system, the one central kitchen of the thirty-five cafeterias of the Long Beach, California, school system served 15,000 customers daily. It operated on two, 8-hr. schedules. With the addition of the second kitchen, one 8-hr. shift is required in each kitchen. The maximum distance from kitchen to school cafeteria is 6 mi. Within the cafeteria organization, the line of authority is from the cafeteria director through a dietitian to the kitchen manager at each school kitchen. Economy is effected by the preparation of food at the central kitchen because it enables certain types of purchasing to be done more readily on a large-scale basis, reduces total truck miles to a minimum, reduces loss from overages through the flexibility in shifting left-overs and the reduction of marginal wastes, and enables more accurate control of recipes and preparation of food. The central kitchen can afford to have a dietitian to direct the preparation of food, while individual lunchroom kitchens must have an untrained person or a home economics teacher on a part-time basis.

What's New. A new aluminum steam-jacketed kettle has been designed to provide faster cooking at lower steam pressures. Because of its new shape, the kettle takes up less installation space. The adjustable feet give perfect leveling. Other special features of the new kettle are described.

PRACTICAL HOME ECONOMICS

Vol. 26, June, 1948

Testing your writing. R. Flesch.—p. 386.
*Writing ethics. I. Spafford.—p. 387.
Prepackaging—a marketing revolution. F. N. Jacaruso.—p. 404.
*Our indispensable dairy products. E. P. Larson.—p. 406.
No vacation for this test kitchen. M. McMillin.—p. 412.

Writing Ethics. Dietitians are often requested to do some writing of one sort or another, and the hints given in this article should prove most helpful. The ethics of writing are based on three rules of conduct. These are: be truthful and objective in telling things that happen; be sincere in telling what you believe or think; be honest in using the ideas or experiences of others. Examples of situations in which these rules of conduct played an important part are related.

Dairy Products. Without milk, meal preparation in the U. S. is impossible to imagine. In the U. S. there are five people to every cow. In 1947, 120 billion lb. of milk were produced: 50 per cent was used as fluid milk and cream, 26 per cent was made into butter, 9 per cent into cheese, 7 per cent into ice cream, and 8 per cent became dried, evaporated, and condensed milk. Descriptions are given of the various milk products, such as milk in different forms, ice cream, butter, and cheese. The nutritive value of the different products is discussed.

QUICK FROZEN FOODS

Vol. 10, April, 1948

*Retardation of rancidity in frozen fish by ascorbic acid. J. C. Bauernfein, E. G. Smith, O. Batcher, and G. F. Siemers.—p. 68.

Vol. 10, May, 1948

What retailers think of frozen foods.—p. 41.

Ascorbic Acid and Frozen Fish. The procedures used to overcome deterioration of frozen fish have been to glaze fish frequently if it is large and frozen in the round and to wrap it in moisture-vapor-resistant films if prepared as fillets or steaks. It has been found that crystalline l-ascorbic acid meets the requirements for overcoming deterioration in fish. It is non-toxic, imparts no odor, adds to the nutritive value of the fish, and is non-corrosive. It does not change the flavor of the fish, and there are no significant texture changes.

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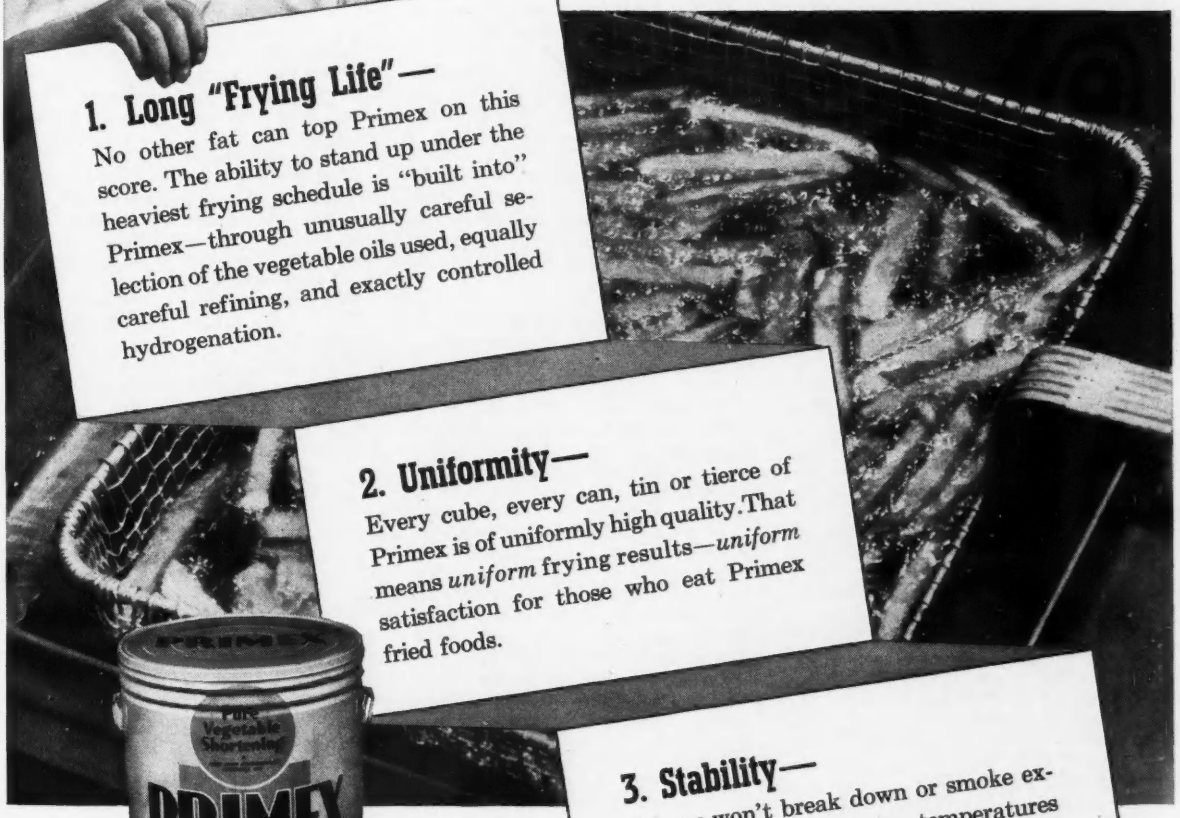

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News Notes

American Medical Association Meeting. Some 12,000 physicians attended the annual meeting of the American Medical Association in Chicago June 21 to 25. However, total attendance, including wives, guests, and exhibitors, was estimated at around 30,000 persons.

For the first time, a section on scientific exhibits was presented as well as the regular technical exhibits of commercial companies. The scientific exhibits, planned and executed by specialists in their respective fields, covered almost every area of medical interest. An outstanding scientific exhibit, prepared by the Army, dealt with the effects of atomic bombing on victims.

Another feature was a week-long series of meetings and clinics on diabetes. At one of these sessions, Dr. Elliott P. Joslin reported on the incidence of diabetes and discussed the groups in which diabetes is most commonly found. These groups include obese persons, Jewish people, married women, those with a family history of diabetes, and those persons in the population over forty years of age. Dr. Henry T. Ricketts discussed the dietary and the effects of insulin. He gave a "rule of thumb" formula for arriving at a dietary prescription for an adult patient: 10 calories per pound "ideal" weight, or 20 to 25 calories per kilogram, plus increments depending upon the activity of the patient. This allowance may then be divided as follows: protein—½ gm. per pound of weight (1 gm. or more per kilogram), with the remaining calories divided equally between carbohydrate and fat. Others who talked on diabetes included Dr. H. O. Mosenthal, who spoke on blood sugar levels; Dr. Priscilla White of Boston who discussed diabetes in childhood; Dr. F. Allan, whose topic was diet and treatment of diabetes; Dr. Charles H. Best, whose subject was advances in diabetes; and Dr. Russell N. DeJong, who spoke on cerebral changes in diabetes mellitus.

Papers covering topics of nutritional interest were also given in the sections on Pathology and Physiology, Experimental Medicine and Therapeutics, Pediatrics, Internal Medicine, and Gastro-Enterology and Proctology. Dietary treatment of hypertension was discussed by Dr. Henry A. Schroeder of St. Louis who reported on experiments with hospitalized patients. The subjects were hospitalized for ninety days before dietary treatment was begun. Then, studies were made to determine the comparative effects of rice and other low-sodium diets. Varying results were recorded, and Dr. Schroeder felt that no definite conclusions as to the value of these diets in the treatment of hypertension could be drawn. In the discussion which followed this presentation, Dr. David Ayman of Boston brought out that there are probably many psychological factors at work in cases where the rice diet has been effective in treating hypertension. Dr. F. Allen of New York City, who introduced the low-salt diet some twenty years ago, stated that the use of such treatment should be judged according to the results obtained in patients who have been on such diets over a long period of time, because dietary treatment can arrest the progressiveness of the disease and that even if the depressive effect of such diets on blood pressure is small, it is significant. Dr. Milton Landowne of the University of Chicago Clinics told of some work with out-patients and that it was found that only about one in three ambulatory patients stayed on a low-sodium diet.

Dr. Ancel Keys' discussion of recent advances in nutrition brought out the fact that much re-evaluation of previous findings is now going on in the field of nutrition. He said that in the past there has been a tendency in this field to oversimplify findings, as for instance in the area of energy and calories. Higher levels of calories and certain nutrients have been used than now appear to be necessary. He pointed out that much that is being learned today is negative. It has been thought in the past that malnutrition has some relation to the incidence of dental caries, yet in Europe, where food shortages caused a great amount of malnutrition, the incidence of dental caries was reduced during the war. Dr. Keys stressed the fact that negative findings are not given as much publicity as positive ones, because they are not as spectacular or as news worthy. Dr. Tom Spies discussed Dr. Keys' paper, and brought out that there are many angles to be considered in evaluating nutritional information. For instance, in malnutrition, it may be true that there is less dental caries, but on the other hand, gum diseases may develop and the person may lose his teeth.

Another paper of interest to nutritionists and dietitians was that of Dr. James S. McLester of Birmingham, whose topic was "Protein Comes into its Own." He discussed studies which have been made with pregnant women and nursing mothers which indicate that a high level of protein intake is beneficial. He also reported that physicians have found that protein plays an important role in resistance to infection and in surgery, and pointed to the dramatic about-face of attitudes toward food for patients with diseases of the liver. Not many years ago protein foods were regarded as especially damaging to the sick liver and large quantities of carbohydrates were given to protect this organ and to promote repair. Today, excellent results have been obtained in cirrhosis and infectious jaundice with a high-protein, low-fat diet.

Other reports given at this meeting included a paper by Dr. Milton Plotz of Brooklyn, who spoke on "Possible Hazards of Diets High in Cholesterol in Coronary Disease" and that of Dr. Fredrick J. Stare, Harvard University School of Public Health, Boston, whose topic was "Fat in Parenteral Nutrition."

National Conference on Family Life. Eric Johnston, Chairman of the National Conference on Family Life which met in Washington May 5 to 8, keynoted the meeting by stating that the principle of self-help should be applied to families just as it is to nations in the European Recovery Plan. The family is a dynamic, ever-changing complex of interacting, growing, changing individuals. One obstacle to family living is resistance to change, and many difficulties today arise from practices which once were valid but are no longer.

To help conferees in their work, a background of population trends was provided. Included in the pertinent conditions brought out by these statistics was the increasing trend in employment of married women. In April, 1947, 21 per cent of the married women were in the labor market. The implications of this trend for the field of foods and nutrition are numerous. Colleges may well question the extent to which their curricula are geared to the working woman.

In December, 1947, the Bureau of Labor Statistics released a city worker's family budget—a modest plan adequate for family health, worker efficiency, nurture of children, and social participation by all members of the family. The total cost of the budget, calculated at June, 1947, prices, ranged from $3458 in Washington, D. C. to $3004 in New Orleans. Current prices are now somewhat higher. Food costs today occupy about 40 per cent of the total budget.

Popular trends support present-day interest in the age groups at the two extremes—namely the very young and the very old. The rapid growth in pediatrics and geriatrics is evidence of the impact of these trends on the medical profession, and the role of nutrition in these two groups is increasingly appreciated. The importance of nutrition in pregnancy was recognized by the conference, and it was

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stated that prematurity should be combated with diet rather than with emergency calls for the police wagon or the ambulance. The increasing number of older people must be kept physically fit and able to assume a useful place in society if we are to avoid pension lists of staggering proportions. The contribution of nutrition in this respect is doubtless very great.

The conference committee on health and medical care recommended education in proper diets, including meal planing and buying and preparing foods. Esther Phipard highlighted the fact that supplies are ample for a high level of nutrition, but that numerous families do not have it.

Other preliminary reports of the conference emphasized the need for improving the food habits of children. A large number of children reaching the age of fifteen have already experienced some decay in their permanent teeth, and dental troubles are more frequent among preschool children than may be thought.

The implication from one discussion was that the effects of alcohol should be taught parallel with the effects of things "we swallow." It was suggested that it is as important to teach the difference between milk and alcohol as between steak and candy. This point of view suggests a new responsibility for educators in foods and nutrition; it is doubtful that many deal intensively with this question. No doubt we need more information as to actual nutritional implications, direct and indirect.

Another question of particular interest to workers in the field of foods and nutrition was raised in the Health Section. Biology is fundamental to an understanding of life. Are chemistry and physics crowding it out of the curriculum? A critical study of this question seems in order in connection with the under-graduate requirements for dietitians and nutritionists.

Specialists in foods and nutrition may well question why little recognition was given in this conference to the strength, psychological as well as physiological, which arises from the family dinner table. It is in order, therefore, to ask whether education in this field has been directed too exclusively toward technical perfection, and not sufficiently toward the role of food and family meals in strengthening the bonds of family life. Undoubtedly foods and nutrition as a field of learning needs closer "articulation" with the fields more philosophically concerned with family life. The relationship to social sciences should be developed to a degree comparable with that existing with the physical and biological sciences.—*Report of A.D.A. Representatives who attended the National Conference on Family Life: Dr. Ercel Eppright, Eloise Trescher, Ada Berning Pear, and Anne Stewart Miller.*

AHEA Meeting. Much attention was given to international problems and to family life as such at the annual meeting of the American Home Economics Association in Minneapolis, June 21 to 24. Judge Florence E. Allen, U. S. Court of Appeals for the Sixth Circuit, spoke on "No Peace Without Justice" and stressed the fact that by using their influence, home economists can help to achieve justice among nations. O. B. Jesness, Chief, Division of Agricultural Economics, University of Minnesota, urged support of the European Recovery Program and the necessity of developing more interest in international affairs. Reuben G. Gustavson, Chancellor, University of Nebraska, talked on "Is War the Only Answer" and emphatically answered "No." He suggested that we use the "creative capacities of men" to avoid war and that we put our faith in the United Nations and UNESCO. Dr. Gustavson defined "imagination" as the ability of men through science to discover new and better substitutes for materials in short supply.

Elizabeth Lee Vincent, Dean, New York State College of Home Economics, emphasized the responsibility of the home economist because of her influence on the lives of other women. Dean Vincent pointed out that, because of her strategic position, the home economist affects the world community. She warned home economics educators against losing sight of the personal development of the girl in their zeal to train skills. Dr. Esther McGinnis, Director, Merrill-Palmer School, Detroit, reported on the National Conference on Family Life held in Washington in May.

Helen C. Dawe, University of Wisconsin Department of Home Economics, described a study in adult-child relationships in the classroom. In the study, teacher-child contacts are divided into two major divisions—restrictive and facilitating. A restrictive method includes any instance when the teacher seeks to impose her will on the child, seeks his compliance, or raises a barrier to the satisfaction of the child's wishes. Facilitating contacts include those in which there is no imposition of the teacher's will but rather an effort to help the child carry out his wishes. So far, records have been obtained only in the university nursery schools, but it is planned to expand the study to cover other situations. No outstanding differences were found between the groups in the average number of contacts received, and in each group restrictive contacts were out-numbered by facilitating ones. It is hoped that further study of differences between adults and differences between children will contribute to better teaching and understanding of children.

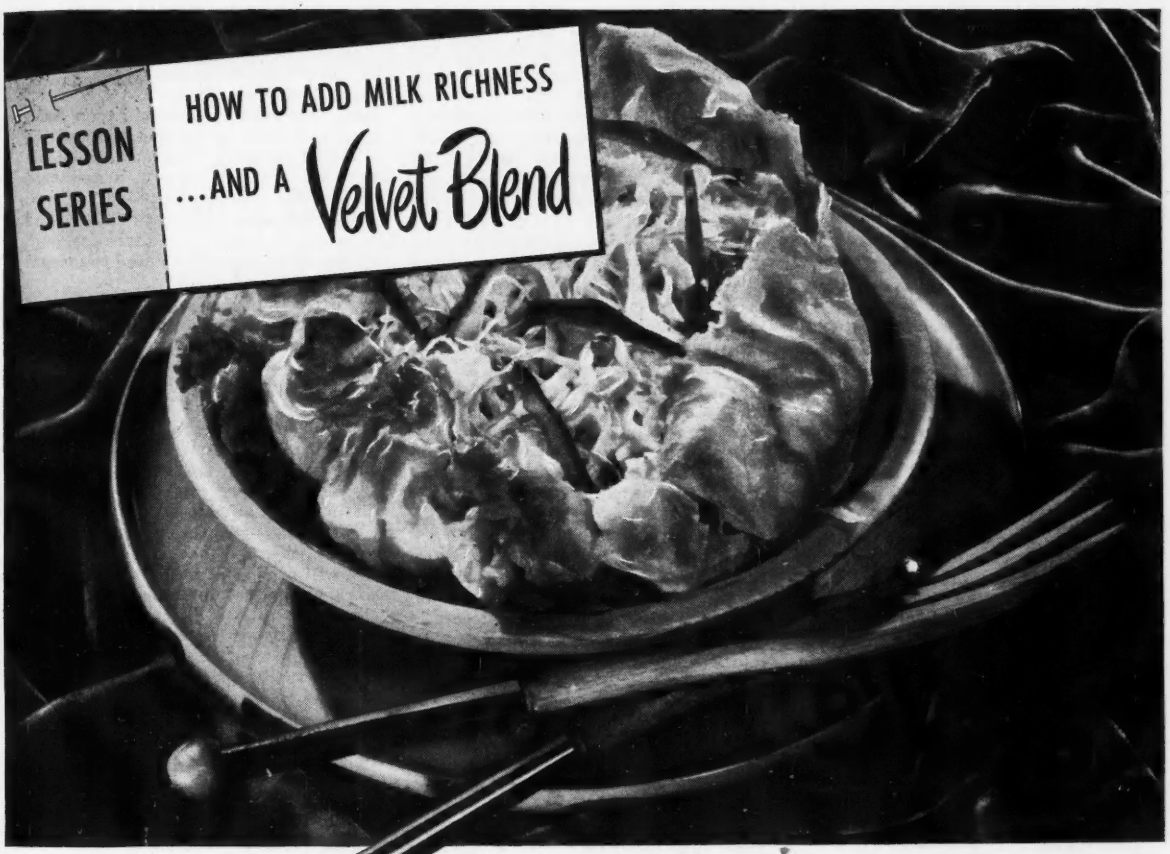
Another study reported was that made in the Bureau of Human Nutrition and Home Economics by Elizabeth Crofts Callison, Elsa Orent-Keiles, Ruth Frenchman, and Elizabeth M. Gates. Purpose of the investigation was to obtain more precise information on the vitamin contribution of green leafy and yellow vegetables. Carrots, sweet potatoes, and kale were studied. It was found that two-thirds of the carotene in cooked kale and one-third in cooked carrots or sweet potatoes is converted into vitamin A in the body.

New officers of the American Home Economics Association for the ensuing year are: President, Marie Dye, Dean, School of Home Economics, Michigan State College, East Lansing; Vice-President, Marjorie Heseltine, Children's Bureau, Federal Security Agency, Washington; and Treasurer, Dorothy Shank, Food and Nutrition Editor, *What's New in Home Economics*, Chicago.

National Health Assembly. At the request of President Truman, a National Health Assembly was called to meet in Washington May 1 to 4 to outline a ten-year program of health goals for this country. Some 850 persons attended the Assembly, which was organized into fourteen different sections to consider specialized problems. These sections were: Medical Care, Professional Personnel, Mental Health, Nutrition, Hospital Facilities, Local Health Units, Chronic Disease and Old Age, Maternal and Child Health, Rural Health, Research, Community Planning, Rehabilitation, Dental Health, and Accidents.

Fifty-four delegates attended the Nutrition Section meetings, headed by Dr. Frank G. Boudreau. It was recommended that state-wide nutrition committees or councils be established and that a cooperative nutrition education program be developed on the national, state, and local levels. In considering the problem of food supplies, it was felt that food production programs should be based on dietary needs in terms of an expanding population and that the relation between the natural resources of the U. S. and the health of our people should be recognized. It was also recommended that special consideration be given to measures to provide an adequate and acceptable diet to groups in this country now suffering from malnutrition. Also stressed was the need for amending the Food, Drug, and Cosmetic Act so that standards of nutritional quality be included, where possible, in definitions and standards of identity. In the international sphere, the establishment of a national nutrition council was recommended, which would promote the international exchange of students and workers in the field of nutrition. The subsection concerned with professional training recommended that all persons trained for activities related to health be given a program of instruction in nutrition, and the need for more specialized personnel in the field was also emphasized, as was the need for more research work in the area related to pregnancy. In the field of nutrition education, it was agreed that the goal should be the establishment of good food habits in every individual and that a program should be planned to reach all groups. A study of the effectiveness of various teaching methods was recommended, as well as the preparation of printed materials and visual aids for use in such work.

The Section on Maternal and Child Health urged the spending of more public money on the medical care of secondary school children, which now ranges, according to the states, from 1 cent per child per year to $3.



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Cabbage Slaw with Velvet Blend Dressing

3 cups finely-cut cabbage
Green pepper strips, if desired
Onion, finely chopped, if desired
1 teaspoon salt
2 tablespoons sugar
½ teaspoon pepper
6 tablespoons Carnation Milk, undiluted
2 tablespoons lemon juice

Sprinkle cabbage, green pepper and onion with salt, pepper and sugar. Stir Carnation Milk and lemon juice together until mixture thickens. Pour over cabbage and toss lightly with two forks to blend. Chill until ready to serve. Makes 6 servings.

For a Velvet Blend ... use "From Contented Cows"

The Section on Medical Care recognized that, although our physicians are probably better trained than any in the world and that this country is one of the healthiest in the world, medical care is unevenly spread among our population. The distribution of medical personnel and facilities in this country follows economic levels of the population in poorer areas, such health services being less available. This section agreed that prepayment (which means insurance) is the best way to finance medical care. It was also agreed that federal funds must be used to finance some of the medical care needed if all of the people are to receive adequate care. On the question of health insurance plans, it was felt that the people should be allowed to establish their own plans, although a number of states now have laws making it mandatory that medical associations control such plans. Agreement was not reached on the question of *how* medical care is to be prepaid.

Throughout the other sections, the focus was on the need for more personnel and more money for health services. The Section on Medical Personnel stressed the great need for dentists, baby doctors, specialists in mental ailments, nurses, and other medical workers. This was reiterated in the Sections on Mental Health, Research, Hospital Facilities, and Rural Health.

The question of personnel arose again in the Section on Local Health Units, which recommended the doubling of all personnel and facilities in the schools of public health in this country.

In considering the problems of research, the lack of personnel was tied up with the need for more money, which would in turn attract more workers now going into other fields. The Section on Mental Health, too, dwelt upon the personnel shortage, both of psychiatrists and psychiatric nurses. There is now only one psychiatrist for every 140,000 Americans, and only 1 per cent of the practicing nurses have psychiatric training although they must take care of half of all patients. The need for more beds in hospitals for psychiatric cases was also brought out.

Although each section was naturally concerned primarily with its own field and problems, the National Health Assembly in itself represents a great step forward, for agreement was reached on many subjects, and spokesmen for the various areas of medical interest met voluntarily to share their views.

Immediately after the final session, the executive committee met with Oscar R. Ewing, Federal Security Administrator, who served as Chairman of the Assembly, and it was decided to continue the Assembly and its committees. A permanent organization will be set up later.

Centennial Anniversary of A.A.A.S. The annual meeting of the American Association for the Advancement of Science to be held September 13 to 17 in Washington will mark the organization's centennial celebration. Two things about the meeting will be different from those held previously. Other meetings have always taken place during the Christmas holidays, and it is hoped that the new time will have added advantages. At other regular A.A.A.S. meetings, hundreds of scientific papers have been presented in the sections and the affiliated societies of the Association. For this meeting, however, a new type of program will be presented. It will consist of two major parts—a series of symposia and another of addresses, both by speakers especially invited to present them.

Fifteen symposia will be held—all in the mornings of September 14, 15, and 16, five running concurrently on each day. To each symposium, three scientists in different fields will contribute a paper. Afternoons will be left free for visits to various places and institutions of interest in Washington, and in the evenings four addresses, given concurrently, will be presented by twelve distinguished scientists.

The topic of foods and nutrition will be the subject of one of the symposia and will be considered by authorities in world agriculture, in the science of nutrition, and in the psychology of food habits. Among the other fields to be covered by the symposia will be: the world's sources of energy, the relation of genes and cytoplasm in inheritance and development, human "educability," the upper atmosphere, and manifestations of waves and rhythms in nature. The fifteen symposia and the men who take part in them will be presented in *Science*.

The evening lectures will include addresses on population problems, the world of isotopes, bird migration, human frontiers, and giant machines for research.

As an affiliated society of the A.A.A.S., the American Dietetic Association is cooperating with this Centennial Celebration, and this JOURNAL will publish in the September issue a paper specially prepared to mark the occasion by Drs. Clive M. McCay and E. Neige Todhunter titled "A Century of Progress in Nutrition."

Institute for VA Chief Dietitians. The second Institute on Dietetic Service was held for twenty-six Chiefs of the Dietetic Service from the thirteen Branch areas of the Veterans Administration at Kennedy VA Hospital, Memphis, from May 17 through May 28. The group of chief dietitians who attended this Institute included fourteen from general medical and surgical hospitals, eight from those treating chiefly neuropsychiatric patients, and four from hospitals for patients undergoing treatment for tuberculosis.

The agenda was planned to acquaint those who attended with the newer trends in food administration, diet therapy, and all matters pertaining to the dietary care of the patient.

At the opening session, Fairfax T. Proudfit of Memphis spoke on "Changing Concepts in Diet Therapy" in which she reviewed the strides made in hospital dietetics and the application of diet therapy. Dorothea F. Turner, a mem-

Army Announcements Concerning Personnel

The following Medical Department Dietitians were promoted during May, 1948:

First Lieutenant to Captain

Barnes, Ethel L., R-10088
Dean, Elizabeth M., R-10075
Donaldson, Marion M., R-10076

Second Lieutenant to First Lieutenant

Poitrast, Marion M., R-10060
Robinson, Jean B., R-2512
Schneider, Joan N., R-2514
Williams, Rebecca L., R-2518

The following dietitian, previously reported as separated, was appointed in the Regular Army, Women's Medical Specialist Corps, Dietitian Subsection:

1st Lt. Beth Campbell, R-10091

The War Department has released the following official list of names of Medical Department Dietitians (not previously announced) who have been separated from service:

Captains

Harris, Rosemary A., R-1369, 147-16 72nd Dr., Kew Garden Hills, Long Island, N. Y.
Henderson, Henrietta, R-1045, 14 Strattford Ave., Durham, N. H.
Moratz, Eunice G., R-1297, 407 Union St., Hartford, Wis.
Mott, Anna A., R-347, 1107 Old Shell Rd., Mobile, Ala.

First Lieutenants

Bohn, Margaret D., R-2416, 187 N. Union St., Battle Creek, Mich.
Boswell, Helen F., R-50, 6206 43rd St., Hyattsville, Md.
Bourquin, Martha J., R-2460, 106 E. Holland St., Archbold, Ohio
Bowman, Betty O., R-2482, 2487 Richmond Rd., Staten Island, N. Y.
Burt, Gertrude L., R-541, Markesan, Wis.
Carter, Evelyn J., R-2337, Wellington, Mo.
Churchill, Evelyn M., R-1083, 236 S. Winooski, Burlington, Vt.
Cook, Marion E., R-2480, Union Grove, N. C.
Denio, Ethel D., R-10032, Station Hospital, Ft. Monroe, Va.
Fanning, Mary C., R-2281, Springfield, S. C.
Fox, Janet E., R-2440, 6132 Ellsworth, Phila., Pa.
Fredrickson, Eleanor, R-2470, 946 E. Park St., Butte, Mont.
Higgins, Charlotte M., R-432, 600 Prospect Walk, Clifton, Va.
Huse, Christina M., R-2294, 830 N. Hoff St., Tucson, Ariz.
Johnson, Eva M., R-2475, 425 N.E. Fourth Logan, Utah
Learned, Norma G., R-2338, 988 S. Williams St., Denver, Col.
Meilicke, Naomi E., R-2469, % Mrs. Earl Johnson, Maddock, N. Dak.
Motley, Dellamae, R-234, 305 S. Williams, Columbia, Mo.
Smith, Charlotte E., R-2329, 637 Clemmer Ave., Cincinnati, Ohio
Stephenson, Zelda, R-2361, Meeker, Col.
Strong, Alice M., R-2254, 534 W. Main St., Norman, Okla.

Second Lieutenant

Brennan, Dorothy A., R-2498, 124 Winthrop Rd., Syracuse 6, N. Y.
Page, Louise, R-2511, 193 W. First, South Payson, Utah
Stark, Helen L., R-2515, 319 W. Georgia, Shawnee, Okla.

Q: Which bread helps you solve the greatest number of dietary problems?

A: ***Ry-Krisp—the crisp whole-rye wafer, has many dietary uses. For instance—***

Ry-Krisp—in obesity diets

Only 23 calories in each double-square wafer. Yet Ry-Krisp supplies the protein, minerals, and B complex vitamins of whole-grain rye. Ideal bread in low-calorie diets.

Ry-Krisp—in allergy diets

Contains only whole-grain rye, salt, and water. A safe, unleavened bread for patients sensitive to wheat, milk, eggs.

Ry-Krisp—as a corrective for common constipation

Ry-Krisp's whole-rye bran and regulating minerals make it a natural corrective when insufficient bulk is the cause of common constipation. Its high percentage of unavailable carbohydrates further encourages normal elimination.

Ry-Krisp—to stimulate teeth and gums

Crisp, crunchy Ry-Krisp provides exercise teeth and gums need.

Ry-Krisp—as an ever-ready every-meal bread

A tempting addition at mealtime. Ry-Krisp is airy-textured, light, golden-crisp. Wax wrapped to prevent loss from staleness. Ry-Krisp *keeps* crisp!

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Please send, no cost or obligation:
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..... C2143, Allergy Diets booklet.

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Street.....
City.....
Zone..... *State*.....

ber of the Veterans Administration Dietetic Advisory Council, spoke on nutrition education with emphasis on the approach which is made in teaching patients and personnel and on the development of the nutrition clinics.

Various administrative problems and procedures, such as menu planning, food production and service, equipment, hospital kitchen layouts, and cost accounting procedures, were discussed.

Speakers for the sessions included the following members of the medical staff at Kennedy VA Hospital: Dr. Charles E. Thompson, Chief, Paraplegic Section; Dr. Nathaniel E. Rossett, Chief, Gastro-Intestinal Section; Dr. Wheelan D. Sutliff, Chief, Infectious Disease Section; and Dr. Benjamin R. Gendel, Chief, Hematology Section.

Among the speakers and discussion leaders from Central Office, Washington, was Dr. Paul Haun, Chief, Hospital Construction Unit, Neuropsychiatric Division, who spoke on "Food and the Neuropsychiatric Patient." Others who appeared on the program were members of the staffs of the various services at Kennedy VA Hospital; representatives from Branch Office #5, Atlanta; Branch Office #6, Columbus, Ohio; Branch Office #7, Chicago, and Regional Office, New York City.

One of the group who attended this Institute was Ana V. Jimenez, Chief, Dietetic Service, San Juan, Puerto Rico, who described the dietetic service in the general medical and surgical hospital there and the food habits of the Puerto Ricans. She presented a demonstration of the native foods and provided sufficient quantities so that each member of the group could become familiar with their flavors and textures. She explained how combinations of these, together with accepted American foods, could provide an adequate diet.

At the final meeting certificates for successful completion of the course were presented to each chief dietitian by Dr. Clyde M. Beck, Manager of the hospital.

Intern Course Withdrawn. Word has been received from Montefiore Hospital, New York City, that its approved course for dietetic interns is being withdrawn.

Dietetic Interns Graduate. On June 29, three dietetic interns completed their training at the *Aetna Life Affiliated Companies*, Hartford, Connecticut. They are: Doris M. Kent, Syracuse University; Evelyn F. Carlson, University of Massachusetts; and Mary E. Wilkinson, Kansas State College. A new class of seven interns has now begun their training at Aetna.

On June 18, the largest class of dietetic interns in the history of the *Johns Hopkins Hospital*, Baltimore, received certificates after completing their year's internship. There were twenty-one young women in the class, representing sixteen states. Phyllis D. Rowe, Chief Dietitian and A.D.A. Food Administration Chairman, presented the graduating class to Dr. Edwin L. Crosby, Director of the hospital, who awarded the certificates.

Invitations to attend the Johns Hopkins graduation exercises were sent to former dietetic interns who have completed the course since it was begun in 1914. Some fifty attended and enjoyed a luncheon in their honor and a tour of the Dietary Department, as well as the graduation. An alumnae organization is now being formed, and Gwendolyn Taylor, Chief Dietitian, Strong Memorial Hospital, Rochester, New York, is chairman of the steering committee of the organization.

Eight dietetic interns were presented with A.D.A. pins recently on completion of their internship at the *Eastman Kodak Company*, Rochester, New York. They are: Jean L. Lenham, Lois E. Stratton, Bette Caum, Geneva A. Hughes, Emmamae Chandler, Donna J. Schowalter, F. Patricia Shoemaker, and Alice S. Griesar.

Three graduating dietetic interns, at the *University of Oregon Medical School Hospital and Clinics*, Portland, were honored at a graduation dinner on June 30 by the interns who will complete their training in October. A French theme was carried out at a little French restaurant, Antoines, and the menu was in French. Class pins and certificates were presented by the course director, Pauline M. Fischer. The graduates were: Catherine Delp, Colorado A. & M. College; Ethel Nelson, University of Utah; and Mary L. Harwell, Texas State College for Women.

Lenna Cooper Retires. Lenna F. Cooper has retired from institutional work and from her position as Chief, Department of Nutrition, Montefiore Hospital, New York City. She will devote herself to private consulting practice and has been appointed consulting dietitian for Montefiore Hospital.

Lt. Col. Burns Retires. On June 30, 1948, Lieutenant Colonel Helen C. Burns, Chief, Dietetic Section, Women's Medical Specialist Corps, was separated from the Army after twenty years of service. Colonel Burns' entire professional career was spent in the Army, and her work was largely responsible for the recognition of dietetics as an integral part of the care of patients in Army hospitals.

Colonel Burns graduated from Simmons College, Boston, in 1926, and took her training as a student dietitian the following year at Walter Reed General Hospital, Washington. After six years as a Staff Dietitian, she was appointed Chief Dietitian, with the additional duty of supervising the Army training course for hospital dietitians, which supplied dietitians for all hospitals of the peacetime Army.

With the passage of Public Law 828, which first provided commissioned status for Army dietitians, Colonel Burns was assigned to the Office of the Surgeon General and appointed Director of Dietitians on January 12, 1943. From that time, she was responsible for developing recruiting programs and setting professional standards for the Dietetic Section. When the Women's Medical Specialist Corps became a permanent part of the Army in 1947, Colonel Burns was appointed the first Chief of the Dietetic Section.

She was awarded the medal of the Legion of Merit on February 21, 1946, for organizing the Army Dietetic Section and formulating "procedures which resulted in outstanding professional achievement in the dietetic field."

Pearl Finegold. Word has been received in the A.D.A. office of the death of Pearl Finegold, who was killed in an automobile accident in May. Miss Finegold became an A.D.A. member in 1946, after having completed her internship at the Jewish Hospital of Brooklyn. She was later employed at the San Joaquin General Hospital, French Camp, California.

New WHO Members. During May, five more nations ratified the constitution of the World Health Organization—the U. S., Brazil, Bulgaria, France, and Rumania. This brings the total membership of WHO to forty-three countries, including thirty-three members of the United Nations and ten non-members.

New Appointments, Veterans Administration

The following hospital appointments of dietitians (not previously announced) have been made by the Veterans Administration.

Name	Position	Location
	Branch No. 2	
Helen V. Donahue	Head Dietitian	Bath, N. Y.
	Branch No. 3	
Eleanor M. Kerchusky	Staff Dietitian	Lebanon, Pa.
	Branch No. 4	
Mollie Beckman	Staff Dietitian	Martinsburg, W. Va.
	Branch No. 5	
Lessie Edith Wagoner	Staff Dietitian	Memphis, Tenn.
	Branch No. 7	
Amy Beringer	Staff Dietitian	Wood, Wis.
	Branch No. 8	
Florence E. Dunn	Staff Dietitian	Lincoln, Neb.
	Branch No. 12	
Jeanne Laura Knoblauch	Staff Dietitian	Los Angeles, Calif.
Beatrice Nathansen	Staff Dietitian	Los Angeles, Calif.
Hazel Osmundson	Staff Dietitian	San Francisco, Calif.
	Branch No. 13	
Alice M. Hastings	Head Dietitian	Ft. Lyon, Col.

GEL-COOKERY for the tired digestive system

Older patients whose digestion is impaired, but whose activities require more than an invalid's diet, can be helped by modern *gel-cookery*.

By this method of food preparation Knox gelatine is combined with an endless variety of food combinations—such as fish, meats, eggs, vegetables, fruits or other foods within a prescribed diet, to make dietary eating a pleasure rather than a chore.

Unlike factory-flavored gelatine dessert powders, which are about 85 percent sugar and only about 10 percent gelatine, Knox gelatine is *all protein, no sugar*.

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SPANISH CREAM

Bland, delicious, nourishing and easily digested for the whole family

In top of double boiler
Soften: 1 envelope Knox gelatine
in: 3 cups cold milk
Place over hot water
Add: ½ cup sugar
Stir until dissolved
Beat slightly: 3 egg yolks
Add: ¼ teaspoon salt
Slowly add the milk mixture to the beaten yolks. Return to the double boiler and cook, stirring constantly, until mixture is of soft custard consistency. Remove from heat.
Add: 1 teaspoon vanilla
Beat: 3 egg whites until stiff
Fold into custard mixture. Pour into one large or individual molds that have been rinsed in cold water. Chill until firm. Unmold and serve with whipped cream or fruit. Note: This mixture will separate and form a jelly on the bottom and a fluffy custard on top. If you do not wish this separation, allow custard to cool until mixture begins to stiffen before adding the stiffly beaten egg whites.

Two sizes—1 ounce (4 envelopes) and ½ pound (32 envelopes)

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All Protein—No Sugar

It is particularly gratifying that the U. S. ratified the constitution and thus became a member of this organization, for it was thought at one time that Congress would not pass on this measure.

Project to Test Equipment. The Quartermaster Corps of the Army has entered into a contract with the National Restaurant Association which provided for an engineering survey of fixed kitchen equipment. The aim of the project is to determine what equipment is best for what purpose, and how it should be used to obtain best results. Much of the field testing will be conducted at Camp Lee, Virginia.

USDA Publication. A new booklet prepared by the Bureau of Human Nutrition and Home Economics of the USDA is *Food for Families with School Children*. In its twenty-four pages are described a fictitious family of six and the problems involved in feeding such a group. The needs of the children of different ages are discussed, as well as the purchasing, storing, and cooking of food. Sample menus and a family food plan are given. The food plan breaks down the recommended foods according to the needs of each member of the family. On the last two pages of the booklet is a list of foods needed to supply the family for one week.

Food Supplies. The Production and Marketing Administration of the Department of Agriculture has announced that the following foods are expected to be plentiful during August:

Fresh produce and fruits

Cabbage	Lemons
Cantaloupes	Oranges
Celery	Potatoes, Irish
	Tomatoes

Canned foods

Apple juice	Orange juice
Apples	Peanut butter
Applesauce	Peas
Blended orange and grapefruit juice	Prunes, fresh (purple plums)
Fruit spread	Tomato catsup
Grapefruit juice	Tomato juice
Grapefruit segments	Tomato paste
	Tomato puree

Miscellaneous foods

Eggs
Fish, fresh and frozen
Honey

Coffee Report. The Joint Committee of the Restaurant and Coffee Industries has issued a *Report on Coffee in Public Eating Places*. This booklet reports a survey conducted to learn about current practices and equipment in actual use in public eating places, as well as to learn the views of restaurant operators and their problems and needs with respect to coffee, its brewing and service. The survey was conducted by the Business Research Corporation. The results published in this small booklet cover the following topics: personnel, coffee procurement, water, coffee service procedure, equipment, and care and cleaning of equipment. Information about brewing procedure is broken down according to geographical variations, type of operation, and whether the urn or vacuum process is used.

Public Relations Film on Restaurants. The National Restaurant Association in cooperation with Standard Brands, Incorporated, has been working on a full color, sound motion picture which has been planned as a public relations activity on behalf of restaurants. Titled "America's Heritage of Hospitality," it will trace development of meal service to the public from colonial times to the present. Scenes have been shot all across the country from New York and Massachusetts to New Orleans and out to Hollywood. The film, which will be shown in theaters all over the country, will be released this fall. Later it will be available to schools, colleges, women's clubs, civic and church groups, and other consumer audiences. A merchandising program will be worked out to coincide with the showing of the film, taking the form of a "Hospitality Year Program" for the industry as a whole to be supplemented by local "Hospitality Drives" where the picture is shown.

News of State Associations

California Dietetic Association. On April 19 the California Dietetic Association opened its annual convention in Hollywood at the Hollywood Roosevelt Hotel, and on the following day, April 20, the meeting moved to the Biltmore Hotel in Los Angeles. A number of papers of special interest to those dietitians working in the field of diet therapy were given by medical men. They included:

"Newer Knowledge in Feeding Tubercular Patients" by Dr. Horace Getz, Charles Cook Hastings Home, Altadena

"Diet in Relation to Bone and Joint Health" by Dr. Harold Crowe, Methodist and Orthopedic Hospitals, Los Angeles

"Cyclic Hyperinsulinism in the Menstrual Cycle and its Dietary Control" by Dr. Harvey Billig, Jr., Director, Billig Clinic, Los Angeles

"Immediate Post-Operative Feeding Technique and Clinical Experience in Gastrointestinal Surgery" by Dr. Arthur Kasloa, Los Angeles

"Emotional Factors in Human Nutrition" by Dr. John Moriaty, Sawtelle, California

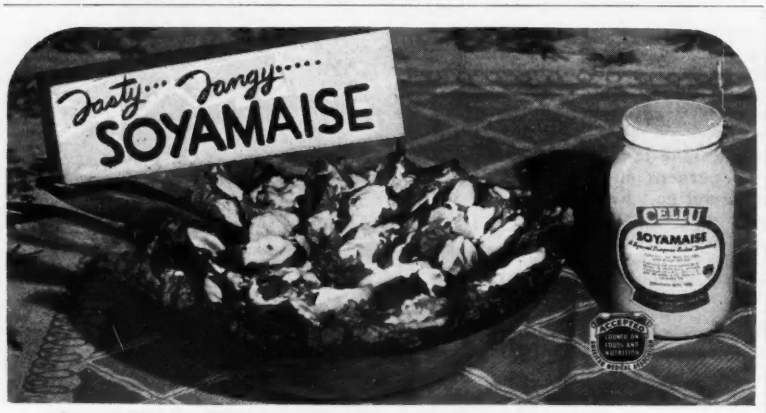
"Nutritive Value of Food as Influenced by the Soil" by Dr. David Appleman, Associate Professor of Plant Nutrition, U. C. L. A.

Other talks of special interest to administrative dietitians were also on the program.

"Food Cost Accounting," by Sally Jarrard, East Los Angeles City College, Los Angeles

"Comparative Salaries of Institutional Workers" by Mary Northrop, Director, Dietary Department, King County Hospital, Seattle

"Food Cost Control" by Clancy Morrison, Director, Food Service, Occidental College, Los Angeles



FOR THE DIABETIC~

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Add zest and flavor to green salads, gelatin desserts, and hot vegetables with delicious SOYAMAISE. Made of soy bean oil, SOYAMAISE adds fat but is relatively low in carbohydrate. SEND FOR GENEROUS FREE SAMPLE.

Also Made Without Salt

Analysis

Fat	85.07%
Protein	1.63%
Carbohydrate	0.79%
Ash Mineral	0.18%

LOW CARBOHYDRATE

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Send for new catalog of Cellu Dietary Foods, including tasty recipes, tables of food values, vitamin charts, etc.

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- **"A" grade is *NOT* the same as "U. S. Good"**
- **"B" grade is *NOT* the same as "U. S. Commercial"**

A recent United States Dept. of Agriculture news release emphasizes *this* fact—important to you: "U. S. Government Grading is the *easiest* and *most* reliable guide consumers have in selecting the quality of meats best adapted to their needs."

No other type of grading is as exacting or as dependable. No other is wholly unbiased . . . impartial. Government Grading serves *your* interests. Government Graders are on Uncle Sam's payroll. They work for *you*. They have no interest in the meat they grade except that it conform to the rigid grading standards laid down by the United States Dept. of Agriculture.

Pfaelzer Brothers pioneered U. S. Government Grading over 20 years ago to the hotel, restaurant, and institutional fields, have adhered to it ever since and are proud to offer this service to you today.

Look for the Government Grade on the meats you buy. It is your definite guarantee of quality.

In addition, *look for the U. S. Government Inspection stamp*—your assurance that the product is wholesome. Finally, *look for the "P.B." stamp*—a symbol of Pfaelzer Brothers' *Personalized Service* and your assurance that your meats have been selected to satisfy your requirements as to weight, quality, cut, trim and age.

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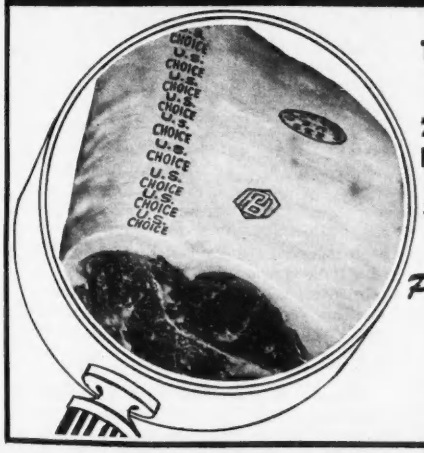

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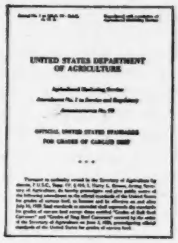

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THE HOUSE OF PERSONALIZED SERVICE
America's Finest Meats and Poultry

"Newer Methods of Meeting Personnel Problems and Maintaining Labor Relations" by Dr. Wayne L. McNaughton, Associate Professor of Management and Industry, U. C. L. A.

"The Ideal Equipment for Food Service in Hospitals of Tomorrow" by Wilbur R. Stewart, Dohrmann Hotel Supply Company, Los Angeles

"Coming Changes in the Frozen Foods Industry" by Roy Hagen, General Manager, California Consumers Corporation, Los Angeles

The luncheon speaker on the first day of the meeting was Dr. Lenor S. Goerke, Director, Bureau of Medical Services, Public Health Department, Los Angeles, who spoke on "Public Health and its Relation to Nutrition." Other speeches on the program included:

"Keeping Balance in Living" by Dr. William E. Branch, Director, Branch Clinic, Los Angeles

"Recruitment of Dietitians" by Dr. Helen Louise Gillium, Associate Professor, University of California, Berkeley

Florida Dietetic Association. Volume 1, Number 1 of *The Bulletin of the Florida Dietetic Association* appeared in June. It is an impressive printed publication, 8½ by 11 in., containing twenty-four pages. Its editor is Pearl Laffitte of Jacksonville. In it is reprinted an amusing and interesting account by Richard Greenleaf (published originally in the Jacksonville *Journal*) of his gastronomical experiences while hospitalized. In addition, there are features concerning the education of the diabetic patient, vocational guidance, and affairs of the Florida Association and individual dietitians. A contest is being conducted, with a five-dollar prize for the winner, to name the new publication.

Kansas Dietetic Association. Officers of the Kansas Dietetic Association for 1948–49 are: President, Sister Regina Marie Dickman, Marymount College, Saline; President-Elect, June McIntire, Veterans Administration Hospital, Wichita; Vice-President, Martha Kramer, Kansas State College, Manhattan; Secretary, Ina Belle Zimmerman, Bethany Hospital, Kansas City; and Treasurer, Leah Ascham, Kansas State College, Manhattan.

The *Greater Kansas City Dietetic Association* has held regular monthly meetings this year. According to the Kansas *Sunflower*, the January meeting consisted of a skit titled "A.D.A. Faces Life" which dramatized a day's work of a dietitian and showed the right and wrong way to discharge one's duties. The original idea for the skit came from the Cincinnati Dietetic Association. In February a buffet supper was given for the Kansas City dietitians by Standard Brands. After the supper two films were shown—"Springtime Is Egg Time," which told about frozen eggs, and "Yeast Factory." The March meeting was a field trip to C. J. Patterson Company, the "Largest Baking Research Laboratory in the World." After seeing various unusual machines, such as one which measures the moisture and ash content of bread, as well as a test kitchen which can produce 1000 loaves of bread an hour, refreshments were served. Favors consisted of miniature loaves of bread.

Wichita Dietetic Association has also held monthly meetings this year. In February, when the group met at the Veterans Administration Hospital, Alice Budge told about the VA dietitian. A tour through the new stainless steel and air-conditioned kitchen at St. Francis Hospital was conducted by Sister Martina in March.

Mississippi Dietetic Association. On May 1, the Mississippi Dietetic Association met in Jackson at the Heidelberg Hotel. The rice diet and its value in the treatment of hypertension and nephritis was discussed by Dr. W. G. Hartnet, Chief, Medical Services, Veterans Administration Hospital, Jackson. Another talk, given by Edalene Stohr, Home Economist of the National Livestock and Meat Board, dealt with the research on the nutritional value of meat and on meat cookery now being conducted by the Board. Vocational guidance and recruitment were covered by Maniza Moore, Past-President of A.D.A. and Chief, Dietetic Division, Veterans Administration Branch Office #5 in Atlanta, Georgia.

New York State Dietetic Association. New officers of the New York State Dietetic Association, elected at the spring meeting at Lake Placid, May 26 to 28, are: President, E. Alliene Mosso, St. Luke's Hospital, New York City; President-Elect, Meredith L. Jones, New York Hospital, New York City; Vice-President, Ruth Palmer, State Teachers College, Buffalo; Secretary, Rachel Mayhew, Consumer Cooperative Services, New York City; and Treasurer, Susan Paige, Payne Whitney Clinic, New York Hospital, New York City.

Pennsylvania Dietetic Association. The annual banquet of the *Philadelphia Dietetic Association*, held on May 26 at the Women's City Club, brought to a close this year's activities. Following the annual reports, Dr. J. P. Shalloo, Assistant Professor of Sociology, University of Pennsylvania, spoke on "Prejudice—Its Causes, Consequences, and Cure." He pointed out the way in which prejudice manifests itself, the accumulation of unconscious attitudes and actions, and the resulting intolerance which gathers momentum to produce social situations which threaten the peace of nations.

One of the most fruitful activities sponsored by the Philadelphia Association this year was a survey conducted by the Professional Education Section among local members to get suggestions for courses for further training. As a result of this survey, two local institutions—Temple University and Drexel Institute—have offered short-term opportunities for professional advancement. Temple University gave an intensive refresher course in "Nutrition in Disease" from June 7 to 25, which carried 2 hr. of graduate credit. Five leading medical authorities lectured on cardiac, kidney, liver, and gastro-intestinal disorders and on diabetes.

Drexel Institute is offering a course in "Institutional Food Purchasing," during which illustrated demonstrations on purchasing of beef and lamb cuts, poultry and eggs, and fruits and vegetables will be given. The course is being given with special emphasis on food cost. Special lecturers for this course include Mary DeGarmo Bryan, and R. B. Donaldson and H. F. McFeeley, Agricultural Extension Economists of Pennsylvania State College.

Members of the *Pittsburgh Dietetic Association* in March were guests of the staff of the Equitable Gas Company and saw the newest institutional and household cooking equipment. The April meeting was held in the lounge of the Nurses' Home of Allegheny General Hospital. At this meeting, Olwen Rees, a home economics exchange teacher from Cardiff, Wales, talked on wartime England and explained some of the interesting points of the exchange teacher program. At the June meeting, held at the Pittsburgh Dairy Council, the following officers for next year were elected: President, Melva Bakkie, Home Economics Department, Carnegie Institute of Technology; Vice-President, Helen Dineen, Elizabeth Steel Magee Hospital; Secretary, Evelyn Weinss, Western Pennsylvania Hospital; and Treasurer, Gertrude Edinger, Joseph Horne Company.

Association Activities

New A.D.A. Exhibit. As a result of the work of the A.D.A. Exhibit Committee and the A.D.A. staff, a new exhibit has been developed to replace the one formerly used to show the nurse's part in the nutrition program. The new exhibit publicizes the *Manual for Teaching Nutrition and Dietetics to Student Nurses* which is to be off the press late this summer. Two pictures are used in the exhibit—one shows the nurse serving a tray to a hospital patient; the other indicates the role of the public health nurse and shows nutrition instruction to a family group in a home.

Since it was completed this exhibit has been used twice—at the Biennial Nursing Convention, held in Chicago, May 31 to June 3; and at the Catholic Hospital Association Convention in Cleveland, June 7 to 10. Very favorable reports have been received from the A.D.A. members who took charge of our booths at these conventions. Many nurses and administrators remarked about the effectiveness of the exhibit and showed interest in the material presented.

Dietetic Interns Help with Vocational Guidance. The contributions which dietetic interns can and do make in the interest of vocational guidance for the profession are considerable, and such activities have been encouraged by course directors. Several different approaches along this line have been reported.

BY Mary I. Barber OF KELLOGG'S

ideas! ideas! ideas!

. . . all for YOU!

Director, Home Economics Department
Kellogg Company
Battle Creek, Michigan

THE JADA CONVENTION is just a few weeks off and we are looking forward to being with you in the city which made baked beans famous.

Listening to lectures and reports, visiting exhibits, chatting—we come home simmering with ideas you've given us.

We hope you'll go home with some of ours! We plan to feature three booklets (practically *books*) crammed with bright new ideas on buying and serving food.

COME AND GET 'EM!

1—Nutritive Values of all Kellogg cereals for use in calculating diets—complete with *Purchasing Guide* giving detailed information on Kellogg packaging units to enable you to order in sizes best suited to your needs. Just off the press!

2—Pot-pourri of Holiday Suggestions: Decorations and favors for tables, trays and cafeteria counters. Menus. Recipes. A whole calendarful of colorful new ideas you'll use all year long.

3—Cereal Fact Book: New, up-to-today edition of our famous "Grains Are Great Foods." All about corn, wheat and rice and how they are used in making Kellogg's ready-to-eat cereals. Meat extender suggestions. Use of cereal crumbs. And tested recipes for muffins, candies and entrees.

ALL THIS . . . AND *US!*

Of course, our Home Economics staff hopes you'll find *us* one of the big attractions at our booth. Some of you are old friends. Some we know by signature only—you who've written for our institutional material. Do stop and let's *really* get acquainted!

Mary I. Barber, DIRECTOR
HOME ECONOMICS DEPARTMENT

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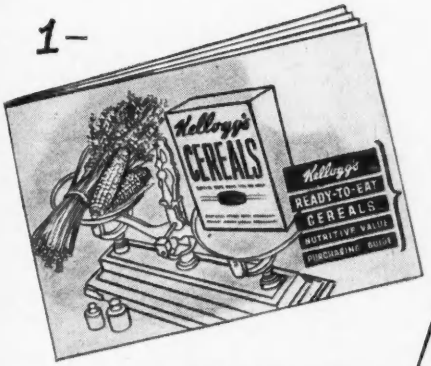

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Coming to convention?
Come to our booth for
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Can't make convention this year? But you *can* get these booklets! Write Home Economics Department, Kellogg Company, Battle Creek, Michigan.

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At *Johns Hopkins Hospital* this year, each dietetic intern has written a letter to her alma mater describing her work as an intern. In addition, the interns as a group entertained a group of underclassmen from Hood College for a day. And at the Baltimore County Career Night, dietetics was discussed by both a dietitian and a dietetic intern.

The interns at the *Veterans Administration Hospital, Bronx, New York*, have also written letters, some to college friends and some to former faculty advisers. These letters were made public to girls registered in home economics in the various colleges contacted. The interns also played hostess one afternoon to one hundred students from the Bronx High School of Science.

Two dietetic interns at *Montefiore Hospital, New York City*, visited classes at their college during the year, and the head of the department has reported that this visit inspired more interest in internships than any other plan tried.

In Portland, Oregon, dietetic interns at Multnomah Hospital, a unit of the *University of Oregon Medical School Hospitals and Clinics*, had a booth in a cooking school during February. One of the interns has also appeared on a radio program and told about dietetics and her internship.

California Dietetic Association. The spring issue of *The Bulletin* of the California Dietetic Association carries an excellent article titled "Public Relations and You!" which stresses the individual's responsibility for building up and maintaining good will for the dietetic profession. Written by Josephine Hardison, it says in part: "Good public relations make and keep friends. They are dependent upon actions which build prestige, make for sound relationships and promote public understanding. . . . You, as an individual, can and should take stock of your position in the community in which you live and work. By your display of friendliness, tolerance, courtesy, and consideration of others, you can attain a high position in your contacts with the public. . . . It matters little whether you are a housewife, a nutritionist in a public health agency, a dietitian in a hospital or industry, or in any related position, you must remember that you can uphold high professional standards and still fill an important role in promoting goodwill and effective human relations with those people you contact. Your ability to work with people and adapt or improve existing conditions of work make for good public relations for the profession and contribute to your personal success as well. After your immediate work has been accomplished to the best of your ability, you should turn to the support of your professional organizations."

Dietary Department Publicized. A four-page description of the Dietary Department of the Indiana University Medical Center appeared in the May, 1948 issue of the *Monthly Bulletin* of the Indiana State Board of Health. Written by Dr. Thurman B. Rice, this feature gives details of the operations and procedures of the Dietary Department and highlights the work and training of the dietetic interns. Seven pictures illustrate the article, which is Chapter XVII of the "History of the Medical Campus" appearing serially in the *Bulletin*.

News of Advertisers and Exhibitors

The American Meat Institute Foundation recently announced the discovery and development of a new antioxidant—known as "AMI 72" which will greatly increase the keeping quality of foods, such as potato chips, pastries, and crackers. It is said to keep products made with lard and other animal fats from three to fifty times longer than when no antioxidant is used. Dr. H. R. Kraybill, Director of Research and Education of the Foundation, said that AMI 72 consists of a mixture of two "food grade inhibitors" to which is added .002 per cent citric acid. It is readily fat soluble, easy to add to lard, requires no special equipment, and is inexpensive. It also greatly increases the keeping qualities of lard itself. By using AMI 72, the keeping time of lard at room temperature was increased from four months to periods ranging between twenty-six and thirty-one months.

Cereal Institute has issued a report on a two-year breakfast study conducted at Purdue University, Lafayette, Indiana. The purpose of the study, which was supported by the Cereal Institute, was to develop and evaluate nutritionally adequate breakfasts for groups of people as represented by the recommended dietary allowances of the National Research Council. The report includes information on the breakfast habits of Purdue University women, as well as fifty-six breakfast menus planned to supply one-fourth to one-third of the daily needs.

G. S. Blakeslee and Company has a new line of mixers and peelers. The peeler is vertically designed and compact, so that it occupies less floor space than former models. Both the peelers and mixers have smooth-flowing lines which make them easy to keep clean. Another new product of Blakeslee is the Niagara dishwasher designed for use in small establishments serving 150 people or less.

Fruit Dispatch Company has recently completed a series of fourteen, 80-second movies featuring recipes for Chiquita Banana. Two are full animation, and twelve are part animation and part live photography. Numbers one and two deal with infant feeding and the necessity of serving bananas ripe, respectively. Each of the other twelve feature a different banana recipe showing in approximately 30 to 35 seconds how to prepare the recipe. The recipes the movies cover include: pan-fried bananas, ham-banana rolls with cheese sauce, baked bananas, banana scallops, peach-banana fan salad, banana-fruit plate, banana-pineapple salad, banana-chocolate cream pie, banana shortcake, banana gelatin dessert, banana milk shake, and bananas with cereal.

Recipe Magic with Heinz Soups is the title of a forty-page quantity recipe book available from *H. J. Heinz Company*. Many of the recipes are the revised forms of earlier quantity recipes and now provide for the use of the condensed form of Heinz soups. The booklet contains sixty-nine recipes for breads, desserts, entrees, salads and salad dressings, sauces, and gravies, soups and vegetables and is well illustrated. The yields for these recipes vary from sixteen to eighty-four servings.

The *Chicago Dietetic Supply House, Inc.*, has revised its booklet, *Cellu Dietetic Products*, which includes more than a hundred ways of working out sugar- and starch-restricted diets. It features the use of Cellu brand foods.

Seco Company has resumed the manufacture of its complete line of nine "Scotty" stainless steel, electric, thermostatically controlled, portable food warmers. A new model, the "Scotty" Mate (SSY-110) has also been added. It is adaptable as an individual unit, in banks of two or more, or can be included in a present bank of matched electrical counter kitchen appliances. On most models in the "Scotty" line, the 12 by 20 in. top opening features thirty different interchangeable pan top combinations. Units are portable and can be plugged in anywhere. A descriptive circular with technical data and illustrations may be obtained from the manufacturer.

Biologic Availability of Protein

A new procedure for measuring the biologic availibility of proteins consists in removing surgically about 70 per cent of the liver of rats previously fed a high-calorie, protein-free diet and measuring the replacement of this liver protein during the recovery phase. Some replacement of liver protein occurs even on a protein-free diet as the result of mobilization of tissue protein. Feeding gelatin and zein lead to no more regeneration of protein than does the nonprotein diet. Wheat gluten gives a moderate increase, liver protein and casein a larger increase; fibrin and whole egg protein result in the greatest increase in liver protein regeneration. The results confirm those obtained by the nitrogen balance method.—*From Current Comment, J.A.M.A. 136: 1101 (April 24), 1948.*